a W. R. C. Smith publication

FIFTY CENTS

Textile Industries

Formerly "COTTON"

MAY, 1959

TUFTED TEXTILES FEATURE

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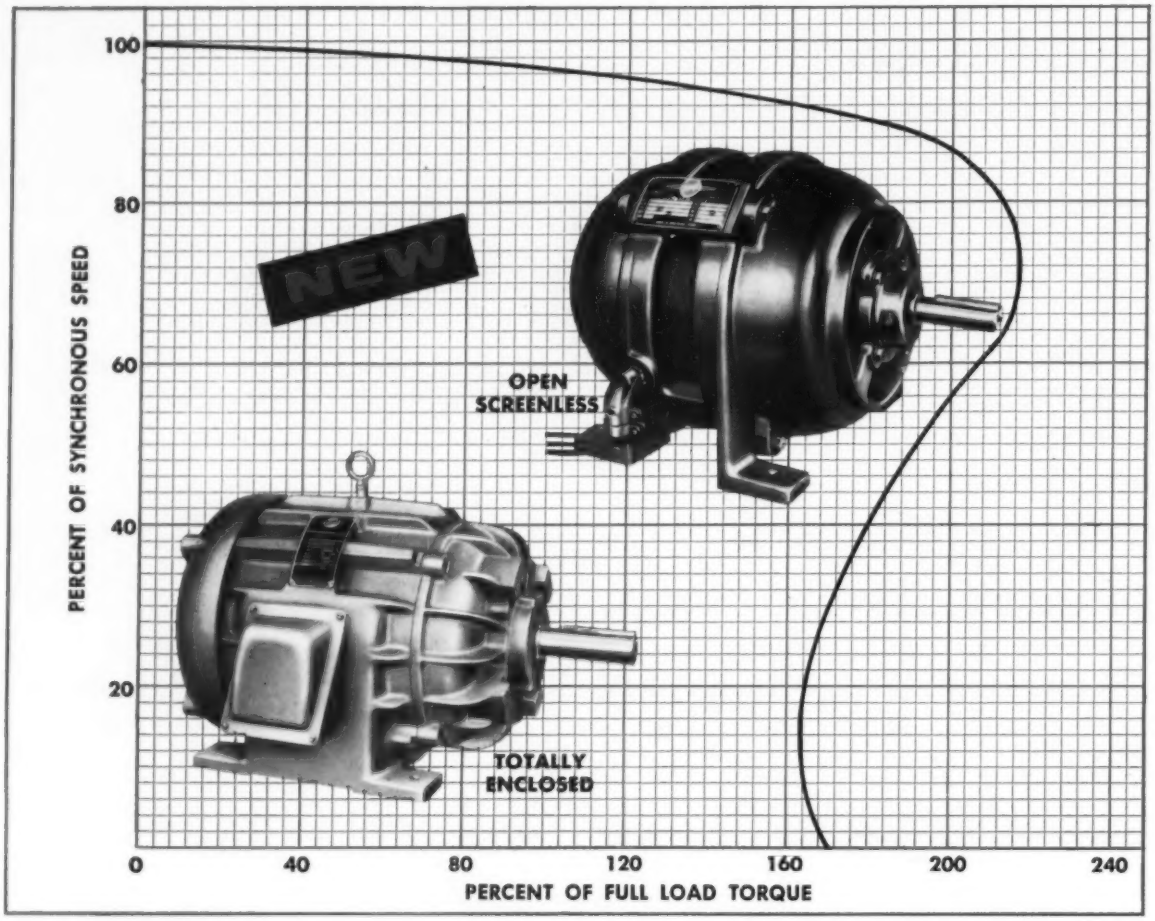
Textile Engineering
BLEACHING & FINISHING

Continuous processing in all phases of textile finishing has already proved its ability to cut production costs, increase production and overall profit. Many leaders in the bleaching and finishing field have already tooled up to engage in this faster, more profitable form of production. On hand, to blueprint the modernization, the production layout, and the new buildings that house many of the nation's most modern operations, have been the skilled planners in the Textile Engineering Division of Robert and Company Associates. An engineering survey of your existing operations will enable you to better judge your expansion and profit potential, as our more than 40 years experience in all phases of textile engineering has helped others.

ROBERT AND COMPANY ASSOCIATES
Textile Engineering Division
ATLANTA



DIEHL* "*Smooth-Accel*" TEXTILE MOTORS

Designed specifically for roving, spinning, combing and similar applications requiring smooth, uniform acceleration

Available in Sizes From 1 to 20 HP

This new line of DIEHL "Smooth-Accel" Textile Motors meets the textile industry's requirements for motor drives with extra smooth and uniform acceleration characteristics, and incorporates design advancements which make this new line top-choice for the efficient operation of today's high speed textile machines.

Note These Important New Advantages

● **Smooth Acceleration:** Smooth, gradual rate of acceleration over the entire operating cycle features the new "Smooth-Accel" line . . . resulting in materially reduced "ends-down" time, and uniform quality of production. The typical curve above illustrates the excellent speed-torque characteristics from zero to full speed. Reconnection of leads for new frame break-in is unnecessary.

● **Reduced Power Costs:** DIEHL "Smooth-Accel" Motors have both high efficiency and power factor over the complete operating range . . . *keep power costs to a minimum.*

● **High Over-Load Factor:** Liberal electrical design and effective ventilation of DIEHL "Smooth-Accel" Motors substantially increase the overload factor, minimizing initial investment . . . *more horsepower at lower cost.*

● **Long Service Life:** "Smooth-Accel" motor windings feature high dielectric and mechanical strength, high thermal rating and special humidity-proof impregnation ... protection against wide voltage variations and the effects of continuous operation under adverse conditions.

● **Construction Features:** Streamlined, easy-to-clean enclosures—dynamically balanced rotors — over-size bearings — large 4-way terminal box (oil- and water-tight connector and vinyl-covered cable optional) — standard NEMA mounting dimensions for ready interchangeability — *minimum maintenance.*

. . . these advantages are yours at no increase over standard textile motor prices! Before selecting your next motor drive for replacements, modernization or new equipment, get the DIEHL story about the New "Smooth-Accel" line.

*Trademark of DIEHL MANUFACTURING COMPANY

Diehl*

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Electrical Division of THE SINGER MANUFACT

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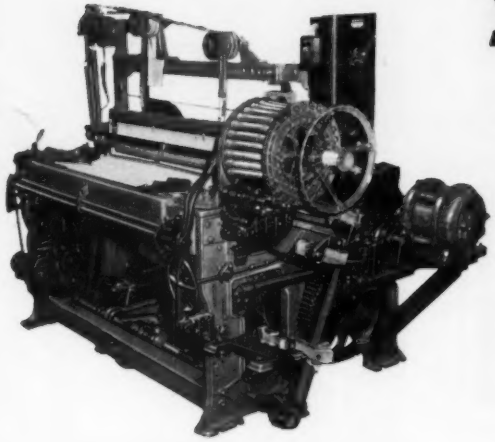

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The REINFORCED

DURAWELD

PICKER STICK

with this Unexcelled Combination . . . . .
Strength and Whip, plus Resistance to Warping

Here is another Stehedco *exclusive* . . . a picker stick that gives you advantages never before available.

- ★ DURAWELD Picker Sticks are made of multiple laminated veneers of *high grade hickory* reinforced with veneers of vulcanized fiber, permanently bonded with phenolic adhesive into a uniform panel.
- ★ This construction gives DURAWELD Picker Sticks far *greater strength* while retaining the desired *"whip"* for high-speed looms.
- ★ These laminated, reinforced picker sticks are much *less susceptible to warping* than ordinary picker sticks.
- ★ Stehedco DURAWELD Picker Sticks will pay for themselves many, many times with *superior performance* and *longer life.*
- ★ Designed for high-speed Draper looms, these picker sticks also give superior performance on slower single box and light multiple box looms.
- ★ The exposed, or nearly exposed, fiber at the picker end of the stick provides greater wear resistance to the lay end slot.

Invest in Reinforced DURAWELD Picker Sticks now and start counting your savings.

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SOUTHERN SHUTTLE DIV.
GREENVILLE, S.C.
Southern

P-5725

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Which of these 3 products and services can you use from BECCO?

"Enclosing $1.00 — Send Patent License"

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Becco has lots of patents, granted as a result of innovations in the use of Hydrogen Peroxide and other Peroxygen chemicals developed in Becco's Research Laboratories. But they don't do us a whole lot of good locked tightly in our safe. So, we long ago adopted the following policy:

If one of our patents can help you, we'll be glad to license the rights to you **perpetually**, for just one dollar. You get a nice certificate, incidentally, to cover the legalities, but more important — you also get free our complete engineering help in setting up your process, handling the material, maintenance, etc., etc.

What do **we** get? You as a **customer** — we hope — but there's no obligation on your part. Just seems to work out that way, though — when we know enough about a particular peroxygen to hold a patent on its use, chances are we've also learned enough to produce it purer than anyone else. You benefit from this; we do, too.

Use the coupon below to ask for a Sales Engineer — or our list of patents — that may help you solve an important problem.

What's a PEROXYGEN?

Fact is, "peroxygen" is a word that Becco uses to indicate that we can tie oxygen onto just about anything.

How come? Well, years of experience in producing Hydrogen Peroxide has produced an affinity between Becco and oxygen — an affinity we have capitalized on to give you compounds that will provide a ready source of oxygen — wherever, however and whenever you need it.

We have a good number of such compounds on the shelves. Quite a few others are in development. Still others are merely in our minds, but we can begin drawing them out if you're interested.

We hope you are interested. But we'll never know — unless you fill in the coupon below and mail it to us. Why not?

Problems in handling Hydrogen Peroxide

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2. Specific proposal with recommendation of proved equipment and where it is obtainable.
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Can you use this free Becco help, based on more years of experience with bulk handling of H_2O_2 than any other manufacturer? Use the coupon to let us know.

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BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York
Dept. TI-F

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- ☐ Peroxygen Chemicals
- ☐ Persulfate Chemicals
- ☐ Please have a Sales Engineer call.

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ADDRESS_____
CITY_____
ZONE____ STATE_____

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Station B, Buffalo, New York
Dept. TI-D

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FIRM_____
ADDRESS_____
CITY_____
ZONE____ STATE_____

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Station B, Buffalo, New York
Dept. TI-B

Gentlemen:
Please tell me more about your Four-Fold Engineering Service.

NAME_____
FIRM_____
ADDRESS_____
CITY_____
ZONE____ STATE_____

Textile Industries

Formerly "COTTON"

MAY 1959 VOL. 123, NO. 5

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Photo courtesy Aldon Rug Mills, Lenni Mills, Pa.

What's back of the boom in tufted carpeting?

Big reason for the success of tufted carpeting is the speed of the unique machines used to make it. These huge, 1700-needle "sewing" machines turn out up to 2000 lineal feet of 18-foot-wide carpet in eight hours which is about 15 times more than from conventional weaving.

Equally important, however, is the unique *backsize* applied to the carpet. For here is the ingredient that not only imparts essential body and stiffness, but also helps anchor the loops, prevents raveling and assures dimensional stability. And these also are the reasons why PLIOLITE LATEX is used as the basis for the size.

Other reasons for using PLIOLITE LATEX, specifically, are its permanence, strength, flexibility, light color—and consistently high quality which assure trouble-free coating operations. For full details on high quality PLIOLITE LATEX, or on other Goodyear latices for textile applications, just write to: Goodyear, Chemical Division, Akron 16, Ohio.

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Work with your AIM*. . . William L. Barrell Co., Inc., does . . .

New Acme Steel Strapping Tool speeds baling

THE BELLE-VUE PLANT OF THE WILLIAM L. BARRELL CO., INC., HILLSBORO, N. C., with the help of their Acme Idea Man, sought a way to make baling their fabrics faster and easier. (Idea No. S6-10)

The new B-5 Stretcher proved a good answer. The bales are still processed in the same way—enclosed with asphalt impregnated paper, loosely encircled with steel strapping, and then compressed. But then the B-5 takes over, and makes the tensioning operation much easier and noticeably faster. Using this method, one man produces about 40 bales a day—all strong and secure.

Workers like the new B-5 Stretcher, too. This light, strong tensioning tool can be used in most any application and works equally well in any operating position.

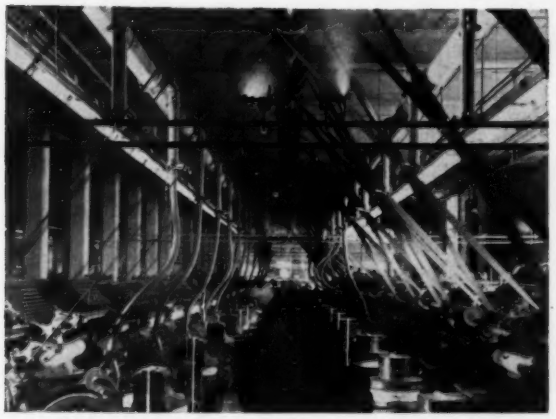
Acme Idea Man E. S. Lumpkin aids the Belle-Vue plant and many other companies with materials handling problems.

***Work with your Acme Idea Man.** He is aware of the latest time and money-saving solutions to materials handling problems. Call or write Dept. TI 5-59, Acme Steel Products Division, Acme Steel Company, Chicago 27, Illinois. In Canada, Acme Steel Company of Canada, Ltd., 743 Warden Ave., Toronto 13, Ontario.

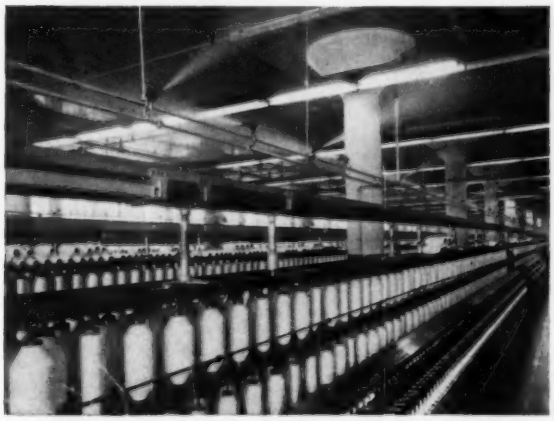
ACME STEEL **STEEL STRAPPING**

WILLIMANTIC, CONN. — Humidification with cooling was the choice in this mill.

DALTON, GA. — Amco Humidification with cooling was preferred for spinning operation at Dalton, too.



NEWNAN, GA. — Amco Humidification alone was selected for carding room at Newnan.



CLOVER, S. C. — Humidification alone is also used in the spinning room here.

Cleveland-Rowan Plant of American Moistening Company. This modern plant is located at Cleveland, N. C. for the fabrication of duct work and sheet metal products.

a leading All-American team...

AMERICAN MOISTENING COMPANY
and
AMERICAN THREAD COMPANY

A 65-year old association which has resulted in great gains in product quality and productivity

Correct yarn regain through maintenance of normal moisture content is only one of the benefits which American Thread has enjoyed as a result of the use of Amco humidification. Among the others are yarn numbers kept more even; increased output due to closer machine tolerances and less static electricity; improved product quality because of fewer thread imperfections, reduced dust and fly, more operator comfort.

Amco, of course, designs *all* types of systems — straight humidification; humidification in combination with ductless evaporative cooling, as used by American Thread; dry duct systems; and central station air conditioning.

For expert advice, backed by many years of textile air conditioning experience, call on Amco. An Amco engineer will be glad to suggest a solution to any air conditioning problem you may have. There is absolutely no obligation.

AMCO

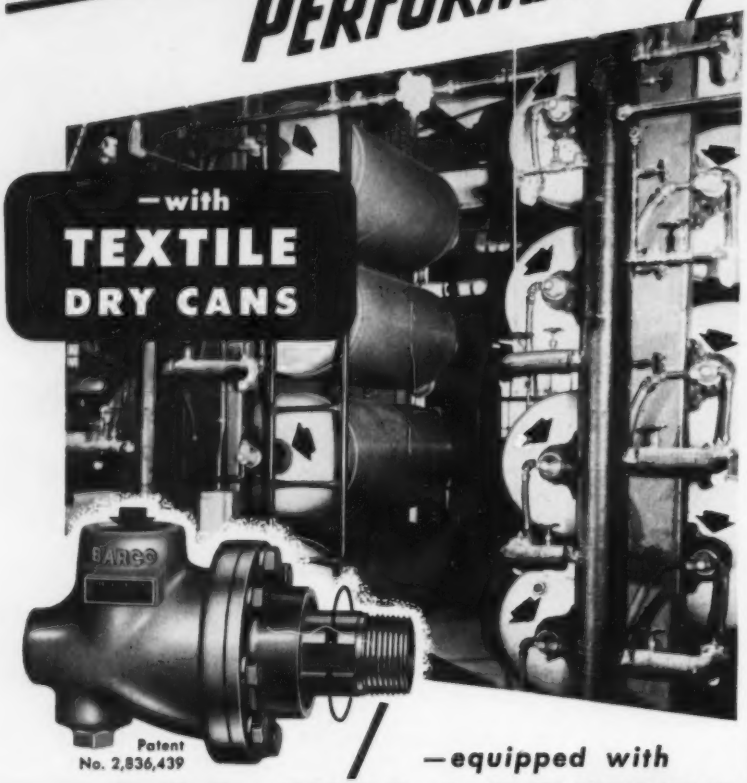
SINCE 1888

AIR CONDITIONING EQUIPMENT

AMERICAN MOISTENING COMPANY • CLEVELAND, NORTH CAROLINA

BRANCHES: ATLANTA, GA. • PROVIDENCE, R. I. • TORONTO, CANADA

OUTSTANDING PERFORMANCE



Patent No. 2,836,439

—equipped with

BARCO TYPE C Rotary JOINTS

- **CHROME PLATING GUARDS AGAINST WEAR**—A standard Barco feature at no extra cost. Minimizes corrosion, friction. Stainless steel spring also standard.
- **RESISTS SEAL RING BREAKAGE**—The spherical seal ring is under compression, not tension, loading. Self-adjusting for wear. Seal withstands shock loads and alternating hot and cold service.
- **WIDE SPACED BEARINGS**—Two, instead of one ... increased bearing area. No lubrication required. Lowest friction.
- **200 P.S.I. STEAM RATING**—Heavy duty service at no extra cost. Eight sizes, ½" to 3".

THE above photograph shows a typical installation of sixteen NEW Barco Type C Rotary Joints on a dry can range. They run at speeds up to 100 RPM, handling 50 psi steam, on a three shift per day basis. All are fitted with syphon drain tubes and flexible connections to individual traps.

The big advantage offered by these new joints is ability to give perfect service month after month without service or attention. Dozens of mills have made comparative tests and are now using Barco. PROVE IT YOURSELF, MAKE THE TEST!

Let us send you complete information about Barco's new Type C Rotary Joints for Textile Machine Dryers, Slashers, Dry Cans, Sanforizers. *Catalog 310 on request.*

SEND FOR CATALOG 310

FOUNDED 1908 BARCO PRODUCTS BACKED BY EXPERIENCE

BARCO MANUFACTURING CO.
574F Hough Street, Barrington, Illinois
The Only Truly Complete Line of Flexible Ball, Swivel, Swing and Rotary Joints
In Canada: The Holden Co., Ltd., Montreal

SHORTS & REMNANTS

► Before we get going this month we must answer a little girl who sent us a note recently: Yes, Virginia, there is an S & R. Not believing in S & R would be like not believing in hot dogs, the Dodgers, and Little Orphan Annie. S's may come and R's may go, but S & R goes on and on. So believe in us, Virginia.

Wants Contacts With Suppliers

". . . Recently our company was able to acquire 24 looms and other preparatory equipment which we are in the process of installing . . . will require supplies from [the U. S.] . . . interested in getting acquainted with some of your reliable advertisers. . ."

F. T. CASTILLO, JR.
Mgr., Castle-Mann's
San Francisco del Monte, P. I.

Liked "Purchasing"

"I have read the special Purchasing Section [TI for Feb. 1959] . . . found the article 'You Can't Afford not to Modernize' well put and to the point. Our depreciation laws certainly have a lot to do with this delay in modernization, and I sincerely hope and expect that the joint work of ACMI and ATMA will bear some fruit along this line . . .

"Incidentally, the Goldberg article ["Textile Research Achievements in 1958"] is of great value to the industry."

ROBERT LEESON
Pres., Universal Winding Co.
Providence, R. I.

Where to Get TI in Spanish

Several readers have written asking for the address of our Latin-American affiliate, who is publishing INDUSTRIAS TEXTILES, the Spanish-language edition of TEXTILE INDUSTRIES. Here it is:

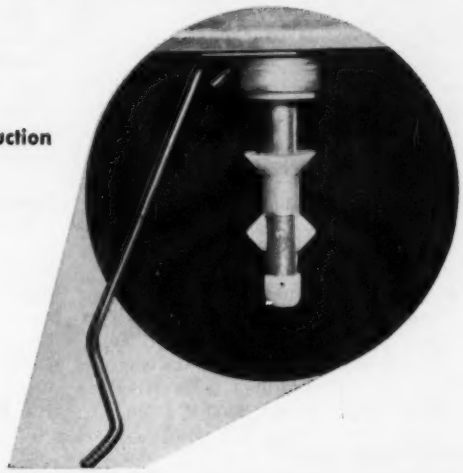
Publicaciones Rolland, S. de R. L.
Vallarta 21
Mexico 4, D. F.

Fiber Chart Still Popular

"["Properties and Uses of the Man-Made Fibers," TI for Aug., 1958] is such a handy chart and con-

Roberts Bobbin Holder

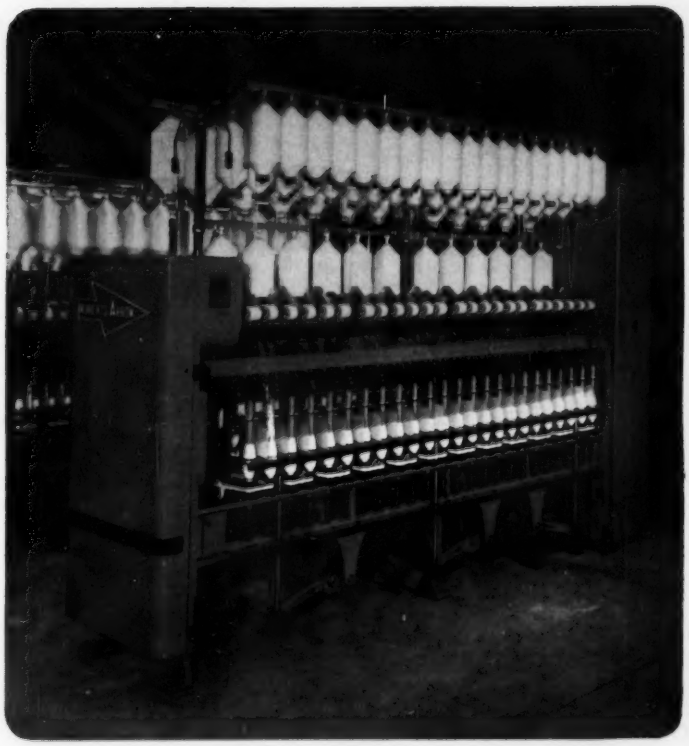
- Snaps off by hand for easy cleaning and inspection
- Retainer type ball bearing for uniform rotation
- Inside spring completely enclosed to keep lint out
- Automatic latching and bobbin release of simple sturdy construction
- Mounts easily on creel channel or on wood creel boards



A FEATURE OF

ROBERTS ARROW

ALSO AVAILABLE AS CHANGE-OVER MODERNIZATION ON ANY MAKE OF FRAME



Very Advanced

ARROW SPINNING features:

- PosiWate Top Roll Suspension
- UnaRing Balloon Control
- EvenGrip Fluted Bottom Rolls
- Roberts Supreme Ball Bearing Spindles
- Double-Apron High Draft System
- UnitVac Power-Suction Cleaning
- Roberts All-Ball-Bearing Head
- Unitized Sectional Frame
- AeroCreel with Latch-Type Bobbin Holders
- Flexibility For Cotton And Synthetics

ROBERTS COMPANY

SANFORD, NORTH CAROLINA

SHORTS & REMNANTS

tains so much information that my copies are continuously finding their way into the hands of others. . ."

GUY THOMPSON
Asst. Tech. Mgr.
United Merch. & Mfrs., Inc.
New York, N. Y.

► This chart continues to draw requests, including those from the librarian, Bradford Cotton Mills, Ltd., Sydney, Australia; **Rudolph Leppla,** Forstmann Woolens, division of J. P. Stevens & Co., Inc., Passaic, N. J.; **Clark E. Thorp,** pres., Fiber Products Research Center, Inc., Beaver Falls, N. Y.; **W. J. Harte,** A. H. Rice Co., Pittsfield, Mass.; and **Florence Mann,** Central Research Dept., 3M Co., St. Paul, Minn. We still have a few copies of the chart left, and an up-to-date revision will be published in our August issue.

Desiccated Dough

It was bound to happen sooner or later. During the war many of us sweated out instant milk, instant eggs, instant potatoes, and what have you. Of recent years, instant coffee has made deep inroads into real coffee. And Jackie Gleason secured a patent on instant booze. Now, perhaps inevitably, Citizens & Southern National Bank, of Atlanta, comes along with "instant money." Seems you can just walk up to one of their tellers, say "Charge it," and walk away with the dough.

However, one of the staff here says that an Atlanta crematorium has reached the ultimate in the advance toward complete dehydration —it proudly proclaims that it is in the business of creating "instant people."

Dyeing Silk Cords "Logwood Black"

". . . proper technical information that would enable us to dye silk threads and cords 'Logwood Black' fast to alcohol and water boiling. These cords are for surgical purposes. . ."

I. RODENSKY
The Woodstock Line Co.
Putnam, Conn.

Color Lock, Fade Proofing For Draperies

"We are interested in a color lock, fade resistant or a fade proofing chemical for pad application to drapery fabrics. . ."

ARNOLD LUSTER
Fibercone Finish
Los Angeles, Calif.

Machines for Hair Nets

"Being a subscriber . . . for a numbers of years, was wondering if you could advise me who makes hair-net machines . . . Thought with your knowledge of machine manufacturers you would have this information . . ."

J. GIBSON
Marsales Co. Inc.
Philadelphia, Pa.

"Spinning Room Practice"

"We have seen a copy of . . . 'Spinning Room Practice' by Horace L. Pratt . . . reprint of articles published in TEXTILE INDUSTRIES . . . like to get 12 copies . . . for our foremen and section men . . ."

C. A. BELL
Cherokee Textile Mills
Sevierville, Tenn.

Wants Part-Time Designer

". . . We are looking for someone to design for us. . . not a full time employee, but rather someone who

(Continued on page 14)

SINCE 1869

"VERYBEST" LOOM NECESSITIES

JACOBS

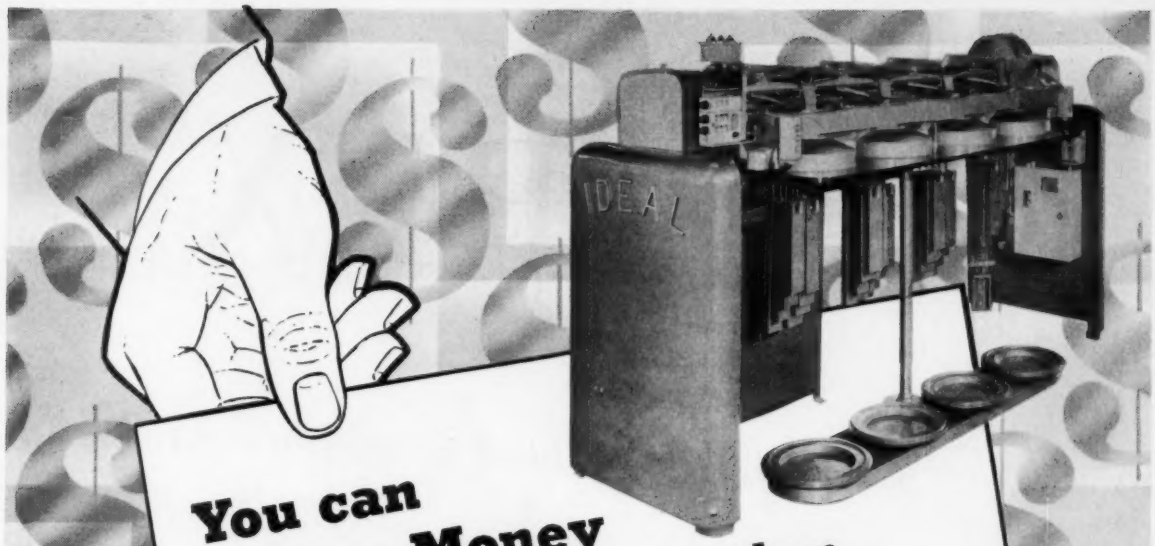
Lug Straps, Picker Sticks, Pickers, Dobby Cords, Leather Straps and other Loom Parts.

THE BULLARD CLARK COMPANY

JACOBS

SOUTHERN DIVISION Charlotte, N. C.

NORTHERN DIVISION Danielson, Conn.



You can Save Money Increase Production Improve Quality ...on Ideal's Trade-In Offer

Ideal will give you a generous trade-in allowance on your old frames against the purchase price of new or rebuilt 16" or 18" gauge four delivery Ideal Feathertouch Drafting Systems.

On rebuilt equipment every moving and working part above the coiler base is brand new and the frame you get is equal to any drawing in appearance, performance and quality. What's more, you lose practically no production time, because your new equipment is installed by Ideal erecting crews as soon as your old frames are moved out.

Ideal Feathertouch Drafting Systems are second to none in speed, performance, and sliver quality. They run smoothly and quietly at speeds of over 400 ft. per min. in normal, consistent operation. Patent construction features prevent damage to fibers and automatically even out thick and thin places in the sliver. Ideal's individual Vacumatic Systems keep the fiber cleaner. Write, wire, or call today for full information.

Some Features:

- Individual Vacuumatic Cleaning
- Individual Motors Individual Drives
- Electro-Magnetic Clutch
- Electric Knock-Off Actions
- Ball Bearing Spacing Sections
- No Shafting, Flat Pulleys, or Belts
- The Famous Feathertouch Action
  —produces highest quality sliver—at over 400 ft. per min.
- Frames can be operated singly or in multiples

Ideal Industries, Inc.
Bessemer City, N. C.

ORIGINATORS OF HIGH SPEED DRAWING

News about LUREX®

A type for every kind of woven cotton

There is a prescribed type of Lurex for every cotton fabric woven—whatever the construction, method of weaving, or dyeing and finishing techniques employed.

- Lurex MF (polyester-foil type)
- Lurex MFCR (special modification of polyester-foil type)
- Lurex MMCR (special modification of metallized polyester type)

Only Lurex gives you this full range of metallic yarns to insure exactly the performance desired in every possible kind of woven cotton job.

See chart opposite and ask your nearest Lurex salesman for further details about the Lurex yarns best suited to *your* requirements.

Lurex, non-tarnishing metallic yarn made only by the Textile Fibers Department

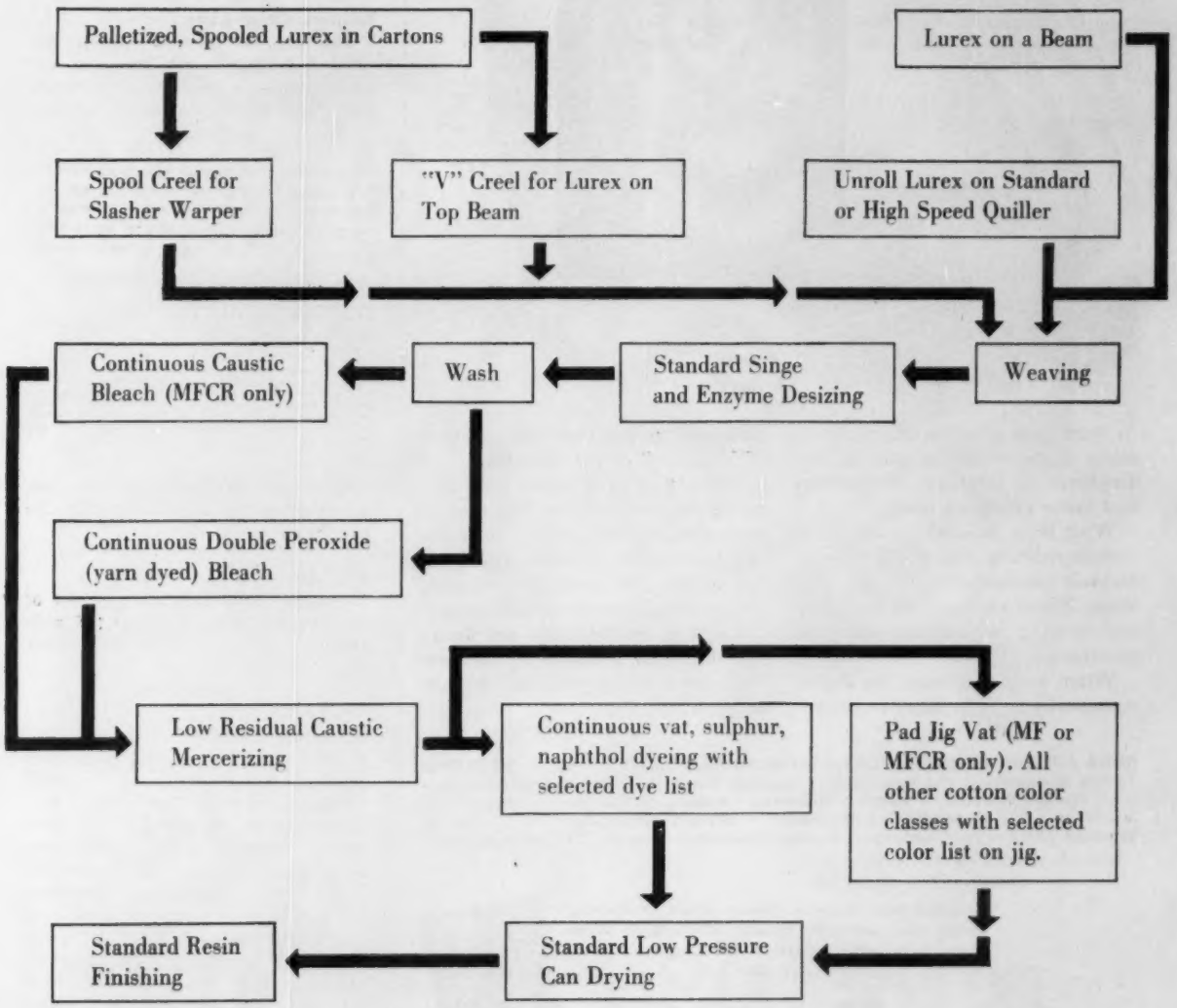
DOW

The Dow Chemical Company • ***Williamsburg, Virginia*** • ***New York: 350 Fifth Avenue***

Boston • Camden, N. J. • Charlotte, N. C. • San Francisco

Manufacturing Affiliates in Canada: William B. Stewart & Sons, Ltd., Toronto and Montreal

Typical flow chart for cotton mills using LUREX MMCR LUREX MF LUREX MFCR


Palletized, Spooled Lurex in Cartons
Lurex on a Beam
Spool Creel for Slasher Warper
"V" Creel for Lurex on Top Beam
Unroll Lurex on Standard or High Speed Quiller
Weaving
Standard Singe and Enzyme Desizing
Wash
Continuous Caustic Bleach (MFCR only)
Continuous Double Peroxide (yarn dyed) Bleach
Low Residual Caustic Mercerizing
Continuous vat, sulphur, naphthol dyeing with selected dye list
Pad Jig Vat (MF or MFCR only). All other cotton color classes with selected color list on jig.
Standard Low Pressure Can Drying
Standard Resin Finishing

THE TEXTILE INDUSTRY *Banks on* **BIJUR** AUTOMATIC LUBRICATION

In hundreds of mills Bijur Automatic Lubrication is paying big dividends in increased production and lower operating costs.

With Bijur, a machine oils itself —while running. You profit from increased production on every machine. There are no stops for oiling and bearing failures are virtually eliminated.

When your machines are Bijur-equipped, even the most inaccessible bearings get the right amount of filtered oil at the right time.

Your operating costs are cut: oil spots on work are eliminated, personnel injuries are avoided, fire risk is reduced, oil consumption is cut greatly by accurate metering, and you enjoy better housekeeping.

Leading textile mills are banking on Bijur Automatic Lubrication. Let us show you how we can help you do the same.

BIJUR AUTOMATIC LUBRICATORS—STANDARD EQUIPMENT IN MANY INDUSTRIES
Textile Machinery • Machine Tools • Business Machines • Printing Machinery • Food Product Machines • Bottling Machines • Packaging Machines • Sheet Metal Machines • Plastic Fabricating Machinery • Glass Products Machinery • Wood-Working Machinery • Industrial Sewing Machines • Special Process Equipment

2568 A

Colorful, new bulletin, "From Fibre to Fabric," shows the practical benefits that Bijur Automatic Lubrication offers to the Textile Industry. Write for your copy.

BIJUR
LUBRICATING CORPORATION
Rochelle Park, New Jersey

Pioneers in Automatic Lubrication

SHORTS & REMNANTS

(Continued from page 10)

would have facilities at their home or office to make sample fabrics . . . we could furnish them with a hand loom and all other equipment needed. . ."

ALAN W. SILVERMAN
Sec.-Treas.
Wendell Plastic Fabrics of Carolina
Blacksburg, S. C.

► Sign in a parking garage in Atlanta: "Help the rich—the poor can beg."

Readers Offer Lists

The cry of distress which we printed in our March issue (p. 32) met an instant response from readers. These are typical of the replies:

בְּרֵאשִׁית בָּרָא אֱלֹהִים אֵת הַשָּׁמַיִם וְאֵת הָאָרֶץ׃ וְהָאָרֶץ הָיְתָה תֹהוּ
וָבֹהוּ וְחֹשֶׁךְ עַל־פְּנֵי תְהוֹם וְרוּחַ אֱלֹהִים מְרַחֶפֶת עַל־פְּנֵי הַמָּיִם׃ וַיֹּאמֶר
אֱלֹהִים יְהִי אוֹר וַיְהִי־אוֹר׃ וַיַּרְא אֱלֹהִים אֶת־הָאוֹר כִּי־טוֹב וַיַּבְדֵּל
אֱלֹהִים בֵּין הָאוֹר וּבֵין הַחֹשֶׁךְ׃ וַיִּקְרָא אֱלֹהִים ׀ לָאוֹר יוֹם וְלַחֹשֶׁךְ קָרָא
לָיְלָה וַיְהִי־עֶרֶב וַיְהִי־בֹקֶר יוֹם אֶחָד׃

Въ началѣ сотворилъ Богъ небо и землю. Земля же была безвидна и пуста, и тьма надъ бездною; и Духъ Божій носился надъ водою. И сказалъ Богъ: да будетъ свѣтъ. И сталъ свѣтъ. И увидѣлъ Богъ свѣтъ, что онъ хорошъ; и отдѣлилъ Богъ свѣтъ отъ тьмы. И назвалъ Богъ свѣтъ днемъ, а тьму ночью. И былъ вечеръ, и было утро: день одинъ.

Ἐν ἀρχῇ ἐποίησεν ὁ Θεὸς τὸν οὐρανὸν καὶ τὴν γῆν. Ἡ δὲ γῆ ἦν ἀόρατος καὶ ἀκατασκεύαστος, καὶ σκότος ἐπάνω τῆς ἀβύσσου, καὶ πνεῦμα Θεοῦ ἐπεφέρετο ἐπάνω τοῦ ὕδατος. Καὶ εἶπεν ὁ Θεὸς Γενηθήτω φῶς. Καὶ ἐγένετο φῶς. Καὶ εἶδεν ὁ Θεὸς τὸ φῶς ὅτι καλόν. Καὶ διεχώρισεν ὁ Θεὸς ἀνὰ μέσον τοῦ φωτὸς καὶ ἀνὰ μέσον τοῦ σκότους. Καὶ ἐκάλεσεν ὁ Θεὸς τὸ φῶς ἡμέραν καὶ τὸ σκότος ἐκάλεσεν νύκτα. Καὶ ἐγένετο ἑσπέρα καὶ ἐγένετο πρωί, ἡμέρα μία.

Other readers with similar lists are invited to send them to the editors.

Reprints

"Please send me two reprints of the articles entitled 'Magog Standardizes Printing' [TI for Jan., Feb., Mar., 1959]."

SYDNEY M. CONE, JR.
Cone Mills Corp.
Greensboro, N. C.

► Not reprinted, but we sent tear sheets. Other reprint requests: "Training Seamer Operators" (Apr. 1953), **J. P. Hawkins,** Burlington Hosiery Mills (S. A.) Ltd., Johannesburg, South Africa; "Needle Felting" (Sept. 1958), **Abbot J. Copeland,** Cohn-Hall-Marx Co., div. United Merch. & Mfrs., Inc., NYC; six copies "Dyeing, Bleaching & Finishing Manual," **Paul Boudreau,** PA, Pinatel Piece Dye Works Ltd., Joliette, P. Q. (This one is available with subscription to TI); "Ready With the Rope" (Feb. 1959), librarian, U. S. Tariff Commission, Washington, D. C.; "Nonwoven Fabrics in One Step"

(Continued on page 22)

For mills with a future!...the frame of the future

the New WHITIN

PIEDMONT

SPINNING FRAME

IN the new PIEDMONT, Whitin offers you a Spinning Frame which is not only smart in appearance, not only advanced in design — but which is also foremost in economy of operation. There are PIEDMONT benefits in every phase of your spinning operation.

PRODUCTION: Increases in front roll speed of 25 to 30% more than *average* production — and up to 15% more than *top current* levels.

PERFORMANCE: Simple construction with "built-in" efficiencies — straight line spinning plus SUPER-DRAFT for quality yarn — large "control-wound" packages for reduced spooling costs.

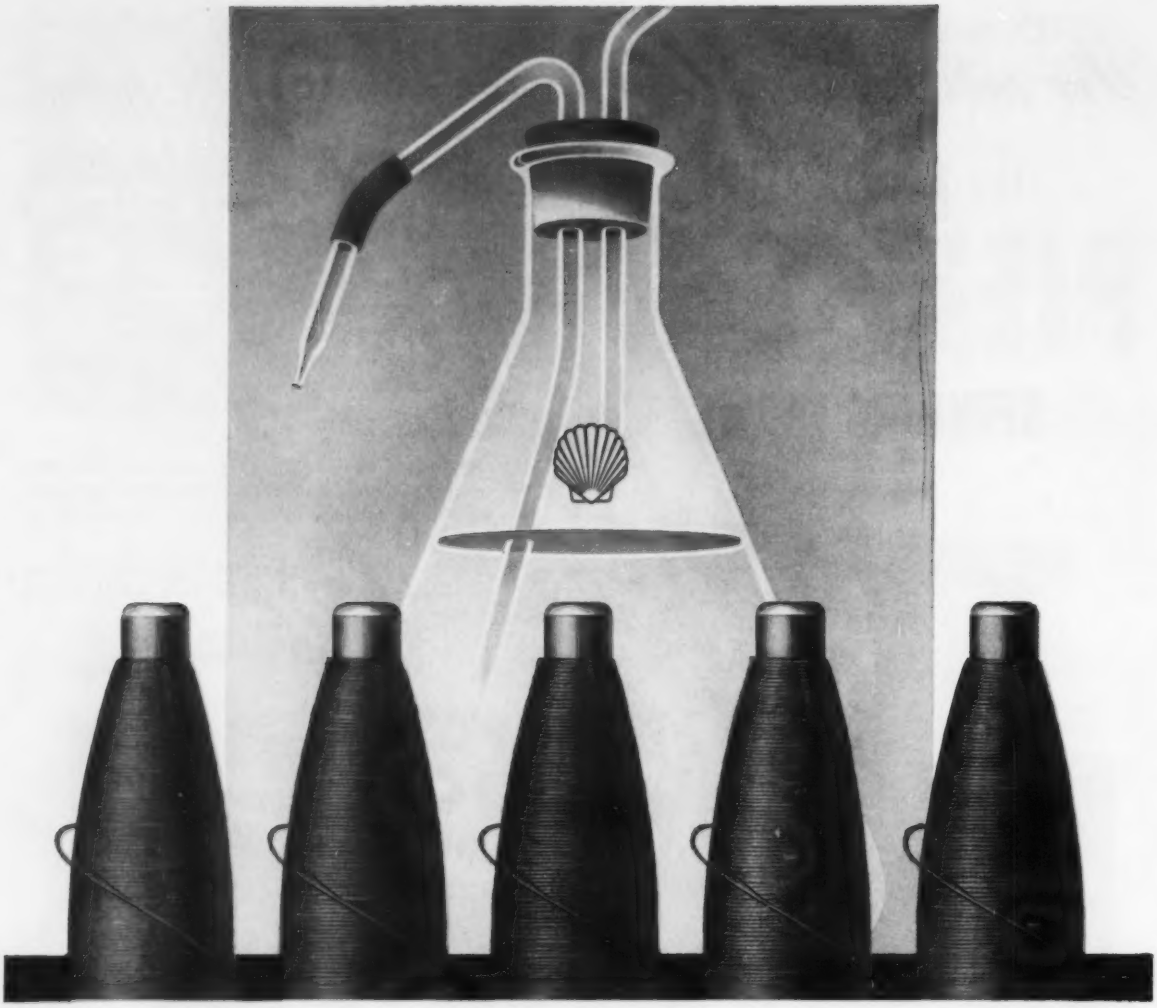
MAINTENANCE: Lowest cleaning costs possible thru streamlining — open construction — ball bearing assemblies — unique single-spindle drive — elimination of cylinders and tapes.

In every respect, the Frame of the future for mills with a future!

Features 27" width, traverses up to 12", enclosed single spindle drive, simplified head end and gearing, new builder, integral waste removal and motor cooling unit.

WHITIN
MACHINE WORKS
WHITINSVILLE • MASSACHUSETTS

CHARLOTTE, N. C. • GREENSBORO, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.



How Shell Chemical serves the textile industry

Chemicals play a vital role in the textile industry. Having the right chemical for the job helps produce *better* fabrics. Shell Chemical is a convenient, dependable source for the chemicals listed at the right.

Hydrogen peroxide serves as a rapid, economical bleach and as an oxidizer for making vat colors brighter. Acetone is a spinning solvent for acetate rayon. Glycerine is a popular moistening agent for fibers and for textile printing compositions.

Eponite® 100 is a very effective, non-chlorine retentive resin for production of minimum-care fabrics. It imparts increased wrinkle resistance to cottons and rayons and reduces rayon shrinkage to a fraction of one per cent.

• • •

A Shell Chemical representative will be glad to discuss your specific needs. Write your nearest Shell Chemical district office for samples and technical literature.

Acetone
Eponite 100
Ethyl Alcohol
Glycerine
Hexylene Glycol
Hydrogen Peroxide
Isopropyl Alcohol
Methyl Ethyl Ketone
Methyl Isobutyl Ketone
Sodium Sulfonates

SHELL CHEMICAL CORPORATION
INDUSTRIAL CHEMICALS DIVISION

Atlanta • Chicago • Cleveland • Detroit • Houston • Los Angeles • Newark • New York • San Francisco
IN CANADA: Chemical Division, Shell Oil Company of Canada, Limited, Montreal • Toronto • Vancouver

New!

Reliance Super 'T' V*S Drives put more power, faster response and greater overload capacity into a 35% smaller package!

New 50 hp. Super 'T' V★S control cabinet compared with 50 hp. old style drive on Reliance production line.

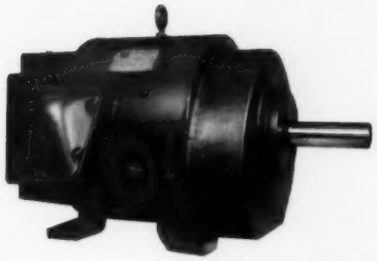
The secret is a new power unit, new controls, and the Super 'T' D-c. Motor

The new Super 'T' power unit packs extra punch into a smaller space. Like the Super 'T' D-c. Drive Motor, it uses Class B insulation and 60°C temperature rise design, permitting 100% overloads. Special control apparatus design has been engineered for the Super 'T' V★S. This systematic balance of power unit, drive motor, and controls forms a single, fast-functioning unit to provide a wide range of variable operating speeds from a-c. circuits.

40—150 hp. Super 'T' V★S available for immediate delivery. Contact your local Reliance Representative for delivery schedules of the complete line, 1—350 hp.

RELIANCE ELECTRIC AND ENGINEERING CO.

The Super 'T' V★S Drive, a complete power package, provides variable speeds from a-c. circuits



SUPER 'T' D-c. DRIVE MOTOR

OPERATOR'S PANEL

Wide range of operating speeds from a-c. circuits adds flexibility to existing production machinery. Speed changes are stepless and can be varied while equipment is operating or stopped.

Controls

New control relays, both a-c. and d-c. Field tested by three Reliance customers—for over 20 million operations without failure.*

Power Unit

Two-bearing power units are always in alignment, eliminate bearing and coupling problems.

Ventilation

Power unit cooling air is exhausted directly out of cabinet. Provides separate ventilation systems for controls and power unit. Controls are kept cooler, materially extending service life.

Insulation

Power units include new NEMA redesigned d-c. and a-c. machines. Units are smaller. Class B insulation with 60° C temperature rise allows more power in less space.

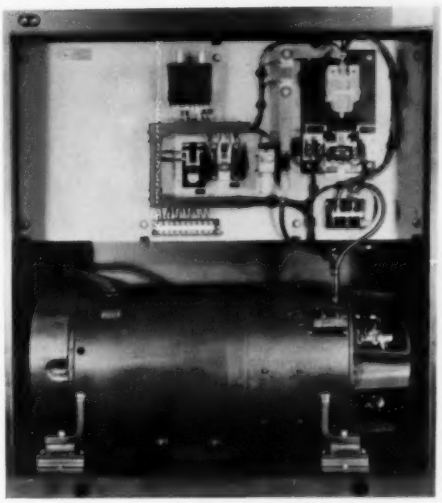
Drive Motor

Super 'T' D-c. Drive Motors give fast response to speed and load changes, take repeated 100% overloads of one minute duration without failure.

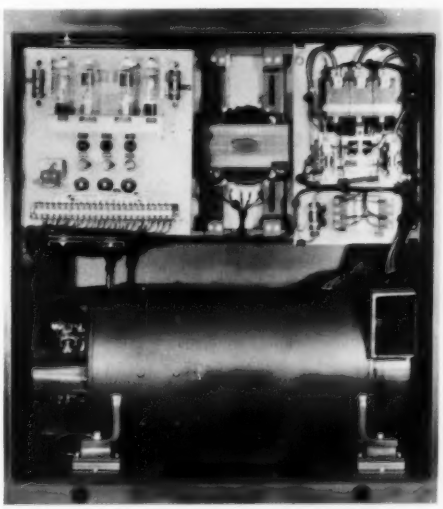
Design

Every component designed for matched performance. New motor controls, new power unit and new drive motor provide balanced operation of production machinery.

*Names on request.



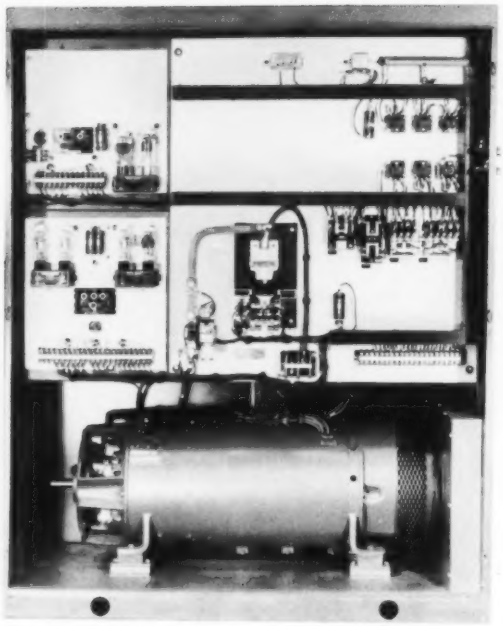
FRONT



BACK

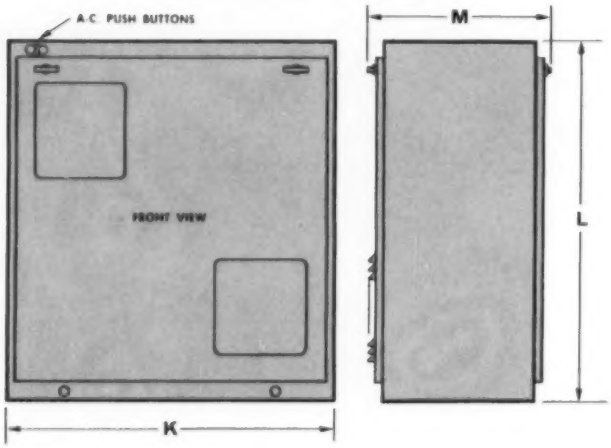
"Custom" Super 'T' V★S Drive for more flexibility, more automatic operation

Every function of the standard model and more. Custom units are designed to incorporate additional controls for engineered installations. Custom models, through the use of feed-back regulation, will provide complete system automation. Control panels are larger to accommodate controls for regulating speed, position, torque and any other operating variables.



Dimensions of Standard Super 'T' V★S Control

FLOOR MOUNTED, 1-150 V★S



Dimensions are in inches and correspond to letters shown.

V★S HP.	CABINET DESIGN	K	L	M
1-15	1SF	35	40	16
20-30	2SF	40	45	20
40-60	3SF	45	50	23
75-100	4SF	55	55	26
125-150	5SF	70	60	30

Product of the Reliance Electric and Engineering Company, manufacturers of a-c. motors, Master Gearmotors, Reeves Drives, Super 'T' D-c. Motors, generators, controls and engineered drive systems.

RELIANCE ELECTRIC AND ENGINEERING CO.

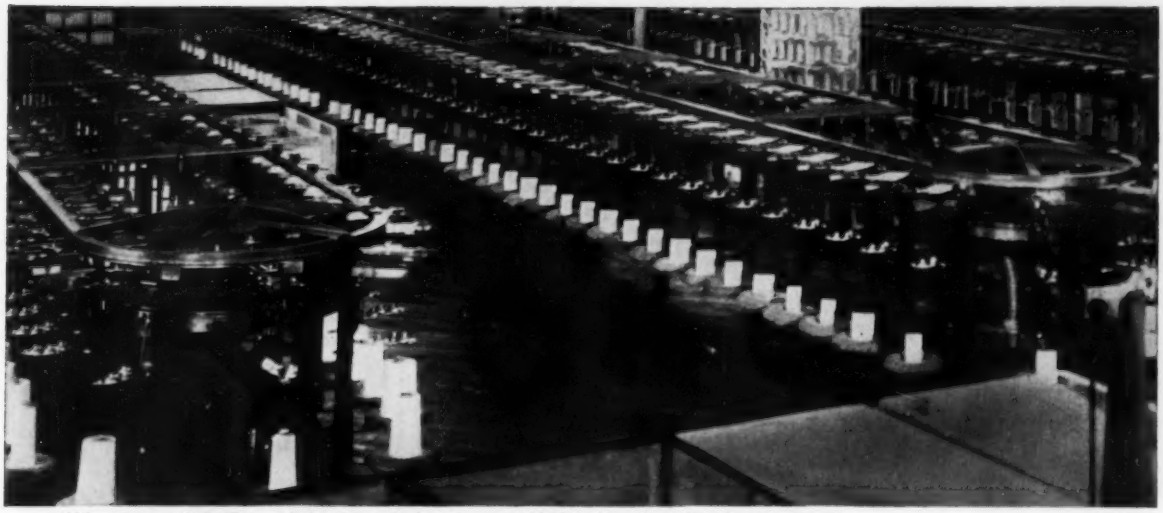
CLEVELAND 17, OHIO
Sales Offices and Distributors in Principal Cities
Canadian Division: Toronto, Ontario

MASTER R REEVES

RELIANCE

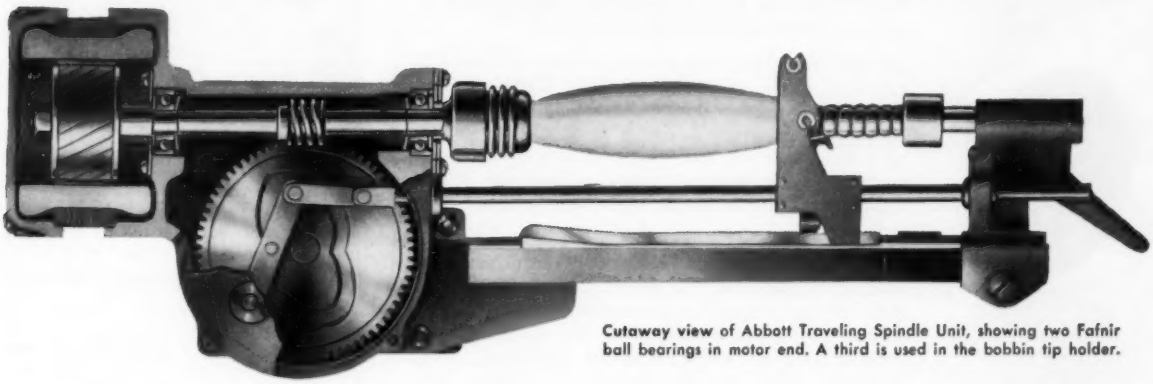
D-1618 Printed in U.S.A.

Precision-winding 2000 bobbins an hour per operator with...



Abbott Automatic Quiller, made by Abbott Machine Co., Inc. of Wilton, New Hampshire, features traveling spindle units, a single automatic head and supply hopper. One operator can run up to four machines.

FAFNIR BALL BEARING-MOUNTED SPINDLES



Cutaway view of Abbott Traveling Spindle Unit, showing two Fafnir ball bearings in motor end. A third is used in the bobbin tip holder.

With Abbott Automatic Quillers, it's the *spindles* that "make the rounds", not the operators. Mounted on Fafnir ball bearings, these traveling units precision-wind bobbins in one trip around the frame. Bobbin loading and doffing are automatic . . . make possible cost-cutting production of over 2000 bobbins an hour per operator.

To help insure yarn quality as well as quantity, Abbott uses two Fafnir ball bearings on the motor and worm shaft of each spindle, and one in the bobbin tip holder. These ball bearings provide the rigidity and low torque needed for exact, constant yarn tension and uniform spindle speeds. Double shields guard against loss of lubricant, and save maintenance.

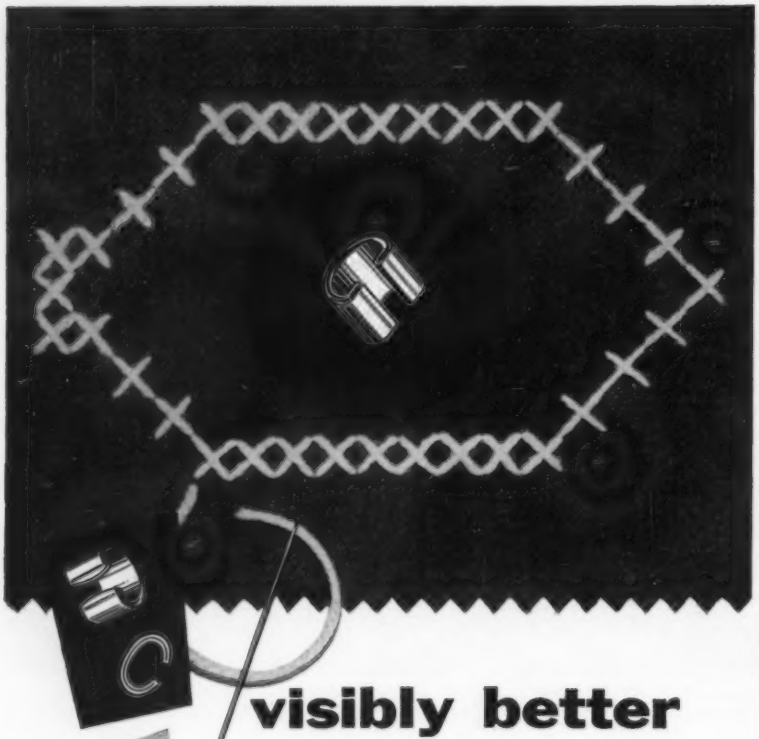
Years of experience with textile machinery bearing requirements go into job-right applications like this. *You* can profit by Fafnir experience, too. Write The Fafnir Bearing Company, New Britain, Connecticut.

Partners in Progress – Abbott and Fafnir

FAFNIR
BALL BEARINGS

Fafnir Extra-Small Shielded Ball Bearings (left) and 200 Series Ball Bearings, also shielded, are used in the Abbott spindle. Bearings are designed to take thrust, radial, or combined loads.

Detail of two-shield ball bearing design



visibly better

One look at their production record will tell you that National-Sterling Ring Travelers offer visible proof of spinning and twisting efficiency at its best.

On job after job — in mill after mill — precision balanced, quality-controlled National Travelers consistently deliver more pounds of first class yarn . . . at higher spindle speeds . . . with fewer ends down. In each case, their uniform weight, dimensions, temper and finish have paid off in demonstrated production economies. They can do the same for you, too.

Try them and see! Whether you're running cottons, wools, synthetics or blends, an experienced National-Sterling Engineer will be glad to help you select the *right* traveler for your particular requirements. Write, wire or phone National Ring Traveler Company and Sterling Division, 354 Pine Street, Pawtucket, R. I. Southern Office and Warehouse: P. O. Box 293, Gaffney, South Carolina.

NATIONAL Sterling RING TRAVELERS

F. L. CHASE, JR., *Pres. & Treas.* L. E. TAYLOR, *Southern Mgr.*

FOR SPINNING AND TWISTING ALL NATURAL AND SYNTHETIC FIBRES

There's a NATIONAL man nearby!

H. B. ASKEW	T. H. BALLARD	F. S. BEACHAM	N. H. LEECH
P. O. Box 424	112 N. 9th St.	P. O. Box 511	354 Pine St.
Griffin, Ga.	Belmont, N. C.	Honea Path, S. C.	Pawtucket, R. I.

Export Agent: **A. M. ROMERO CORP.**, 350 Fifth Ave., New York 1, N. Y.

SHORTS & REMNANTS

(Continued from page 14)

(Oct. 1958), **Jules L. Lobsitz,** Upper Montclair, N. J.; "Nonwovens Up-to-Date" (May 1958), **John R. Graham, Jr.,** Harvard Graduate School of Business Administration, Boston, Mass.; "Causes and Effects of Roll Runout" (Jan. 1959), librarian, ITT, Charlottesville, Va.

TI Rep Feted

And up in Laconia, N. H., our New England representative, Art Shaw, on his most recent visit to that Gem City of the Granite State was feted, lauded, celebrated, exalted, and extolled, according to word reaching Atlanta (from Art). Here's a picture purporting to show part of the ceremonies:

We're not sure either just what this proves, except that in S & R you'll find information available nowhere else.

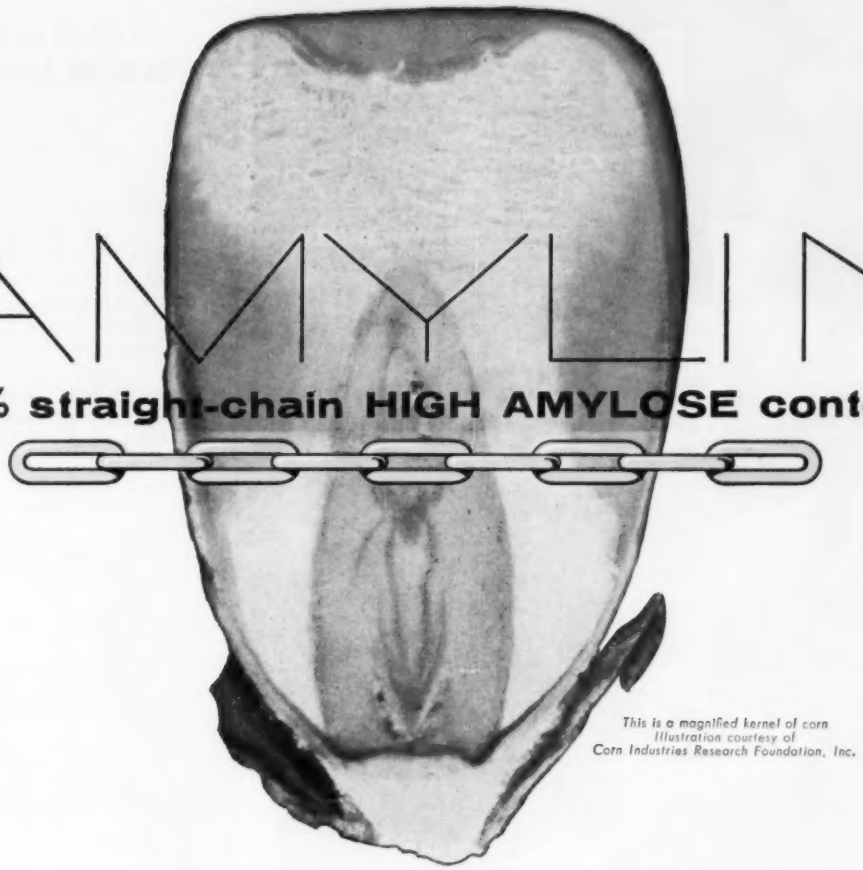
►Georgia takes a back seat to no one in the ingenuity of its politicians. The lately retired state administration is reported to have purchased a quantity of rowboats which would not float. But all was not lost. The rowboats were sent to state parks which have no lakes.

Research Achievements

The textile industry is reported to be getting more and more hep to the value of research, and if you can judge by the ever-increasing number of technical meetings on textile subjects, there's no doubt about it. Articles such as J. B. Goldberg's "Textile Research Achievements in 1958" (Feb., Mar. 1959) also seem to be drawing more requests for further information; for

AMYLIN

55% straight-chain HIGH AMYLOSE content



This is a magnified kernel of corn
Illustration courtesy of
Corn Industries Research Foundation, Inc.

A RADICAL GENETIC CHANGE

science and nature synthesize a new chemical polymer

NOW AVAILABLE in semi-commercial quantities. A radically altered natural starch polymer that contains 50-55% amylose —the straight-chain molecular component of starch.

This is the first major genetic advance leading to a potentially feasible starch containing 100% amylose. It's an exciting genetic achievement. Until now, the amylose content commonly available never exceeded 27%.

Geneticists have worked for many decades to develop special qualities in hybrid corn. Such as high yield, drought and insect resistance. A change in chemical structure was first accomplished industrially by the breeding of corn containing 100% amylopectin which NATIONAL introduced as AMIOCA in 1943. High amylose corn represents another major industrial accomplishment in the new area of plant breeding intended to alter the polymer structure of the starch itself which NATIONAL is introducing as AMYLIN®.

Milled from high amylose corn in the same way as ordinary starch, AMYLIN represents a marked step towards the unusual properties of amylose itself: Film formations, with greater strength than ordinary starch films. With improved water, grease and oil resistance. Flexibility. Unusually strong gels. Adhesiveness.

To the inquiring mind, these unusual properties suggest a variety of applications: Soluble and digestible packages for instant coffee, meats, vegetables, fish, fruit. Butter. Vegetable shortenings. Soluble packages for soap powders and insecticides. Grease and oil resistant coatings. Water and humidity resistant binders. Improved textile sizes and finishes, etc.

An invitation is extended to all who are interested in exploring the properties of this new high amylose starch.

Address: Amylin Starch Division, National Starch Products Inc., 750 Third Avenue, New York 17, N. Y.

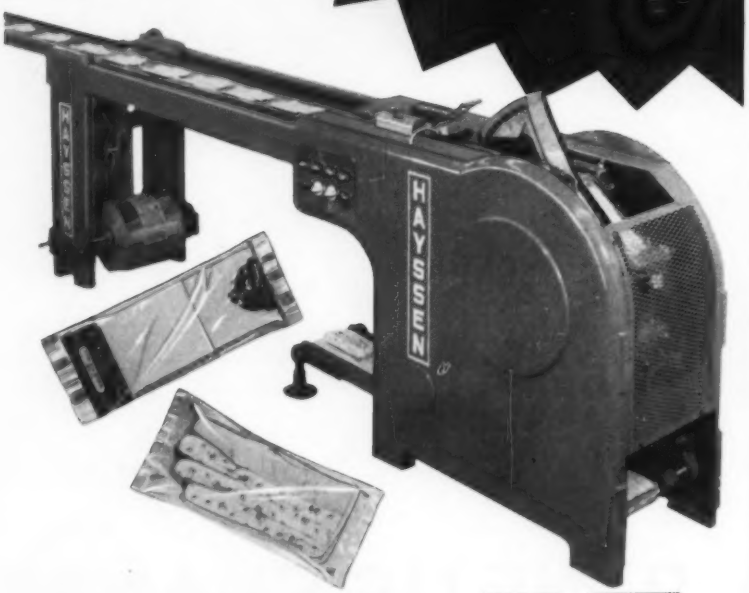
National

STARCH PRODUCTS INC.

NOW!

Textiles wrapped at 100 packages a minute with

POLYETHYLENE



New HAYSSEN RT

The Hayssen RT brings new packaging economies to the textile industry by providing, for the first time, hi-speed automatic packaging for non-uniform textile products. The RT wraps without u-boards, cards or other support giving you greater material and labor savings. Use any heat sealing material, including unsupported polyethylene. The RT gently wraps your product by forming the package around the product. Machine parts never contact item being wrapped, which makes the RT safe for even the most delicate fabric. Get the details. See how the new Hayssen series RT can give you greater time, material and labor savings. Write Hayssen today.

AUTOMATICALLY PACKAGES —

Gloves, Socks, Nylon Stockings, Sweaters, Shirts, Jackets, Work Clothes, Ties, Lingerie, Yarn, Yard Goods, Bedding, Linens, Towels

DEMONSTRATION
KNITTING ARTS EXHIBIT
MAY 4-8

THIS IS OUR 50th YEAR AT

HAYSSEN MFG. CO.

Dept. TI 104, SHEBOYGAN, WISCONSIN

The world's oldest and largest *exclusive* manufacturer of packaging machinery

Atlanta • Boston • Chicago • Dallas • Denver • Detroit • Jackson, Miss. • Kansas City • Los Angeles
Minneapolis • New York • Philadelphia • St. Louis • San Francisco • Montreal • Toronto • Vancouver

SHORTS & REMNANTS

instance, from **Armand A. Zaleon,** chemist, Lee Dyeing Co. of Johnstown (N. Y.), Inc.; Le President Directeur General, Promaco, Mulhouse, France; **E. Cohen,** Canadian Celanese Ltd., Drummondville, P. Q.; **William P. Crawley,** ceramic fiber project, Carborundum Co., Niagara Falls, N. Y.; and **John V. Lee,** physicist, USDA Ginning Research Laboratory, Clemson, S. C. **Robert L. Rice,** Drexel Hill, Pa., just asked for "further information on the research achievements described [by Mr. Goldberg]." That's a large order, since several hundred were described. Please be specific—tell us which research achievements you are particularly interested in.

"Field With a Future"

Anyone who wants to show a movie on "textile chemicals—the field with a future" to local high school groups should write to **Wm. Caldwell,** pres., Wica Chemicals, Charlotte, N. C. An interesting 30-minute color movie on possibilities of careers in textile chemicals is available for such showings.

Index, Anyone?

Did you get your copy of the Index to TI for 1958? **Welley Vezina,** Dominion Textile Co. Ltd., Montmorency, P. Q., did; and so did **W. Macmillan,** research director, Indian Jute Mills Association Research Institute, Calcutta; and **J. G. Schmidt,** foreign sales manager, Scott & Williams, Inc., Laconia, N. H.; to pick a few at random. It's just like at the ball game—you can't tell the articles without an index. So rush right out to your nearest mail box and ask for one (don't ask the box; send the card on page 205).

Advertisers in Spanish

Quite a few familiar names were among the advertisers in the first issue of INDUSTRIAS TEXTILES, TI's Latin-American edition: Akron Spool & Mfg. Co.; Allen Co.; Bahnson Co.; A. B. Carter, Inc.; Celanese Mexicana, S. A.; Cocker Machine & Foundry Co.; Draper Corp.; Excel, Inc.; Foster Machine Co.; Monsanto Mexicana, S. A.; Parks-Cramer Co.; Roberts Co.; Saco-Lowell Shops; Sanitized, S. A.; Scott & Williams, Inc.; Sonoco de Mexico, S. A.; Southern Textile Works; Strandberg Engi-

for more than 35 years

Standard

SPECIALISTS IN

TEXTILE OILS

TEXTILE FINISHES

TEXTILE SPECIALTIES

PYROTEX 121

A detergent that is easy to handle, dissolves quickly and can be used on all fabrics. Its quick rinsability reduces the number of rinses thus cutting cost of operation. In dyeing, it promotes levelness, penetration and clear shades; the goods are left with a soft, pleasing hand.

STANDAFIN 77

A fully polymerized resin that requires no curing or after-treatment. The problems of yellowing of white and light shades are eliminated; the worry of odor is gone. This product imparts a soft, silky hand, is an excellent non-slip and has good anti-static properties. Because so little is needed for finishing, the overall cost is low.

STANDAFIN T.

Specially designed for a taffeta finish requiring swish, non-slip and extraordinary character. It imparts a rustling sound, firm hand and fullness that is so desirable in this type of cloth. This non-curing resin requires no after-treatment or washing, is easy to use, will not mark off and is not affected by atmospheric conditions.

STANDARD CHEMICAL PRODUCTS INC.

HOBOKEN, N. J. • CHARLOTTE, N. C.

THE NATIONAL SCENE

in TEXTILES...

no other type of container handles materials so surely... or so gently!

Kennett Receptacles are unsurpassed for safe, sure, clatter-free handling of delicate yarns, fabrics and finished garments. They're made of National Vulcanized Fibre, a material amazingly light, tough, smooth, durable.

If you don't know these standbys of the textile field, it will pay you to check into them now (whatever your materials handling problem). Kennett Receptacles are made of National Vulcanized Fibre . . . not a paper, but a chemically-made fibre that is one of the strongest materials per unit of weight that ever went into a container.

Kennett Receptacles can be slammed, banged, stacked, knocked and abused in mills, warehouses, stores, stockrooms and on production lines and they'll come back for more. Vulcanized Fibre won't split, crack, dent, crush, crumple, blister or rust. It's strong, yet so amazingly sleek, resilient and shock-absorbing that Kennett Receptacles are the choice for safe handling of delicate materials, components and products in almost every industry.

There is a full line of sizes and types: roving cans, trays, tote boxes, barrels, cases and multi-purpose trucks available, even in a fire-resistant fibre if you wish. Or, name your special requirement and Kennett can provide it.

Write direct to Dept. W-5 today for our comprehensive booklet. If you'll name the use you have in mind, we'll be glad to tell you specifically how we can help.

NATIONAL VULCANIZED FIBRE CO., Wilmington 99, Del.
In Canada: NATIONAL FIBRE CO. OF CANADA, LTD., Toronto 3, Ontario

SHORTS & REMNANTS

neering Laboratories, Inc.; Torrington Co.; West Point Foundry & Machine Co.; and Whitehead Die Casting Co.

Latin-American readers are invited to write for a sample copy.

Miscellaneous Wants

More information on loom check straps—**J. D. O'Neil,** mgr., Stillwater Worsted Mills, Inc., Craigsville, Va.

Who makes hydraulic slasher drive described in article starting on p. 69, TI for Mar. 1959?—**Tom Mack,** purch. dept., Burlington Industries, Greensboro, N. C. (The drive is made by Vickers, Inc.)

Further data on loom cut meters —**C. F. Sallade,** supt., Widder Bros., Inc., Lancaster, Pa.

Large coilers with "Alley-Skat"—**O. B. Haney,** plant mgr., Texas Textile Mills, Inc., Waco, Tex.

Permission to reprint poem "Wanted—Textile Executive" (TI for Mar. 1959, p. 104)—**Harral Young, Jr.,** "Bobbin and Beaker," Clemson (S. C.) College. (Permission granted.)

More information on Duramold shuttles and plastic pickers—**H. T. Howland,** PA, Waterbury Felt Co., Skaneateles Falls, N.Y.

Further details on blended cotton (Otto Goedecke)—**Joe P. Hughes,** mgr., Cone Mills Corp., Hillsboro, N. C.; and **L. E. Morrell,** supt., Roxboro Cotton Mills, Longhurst, N. C.

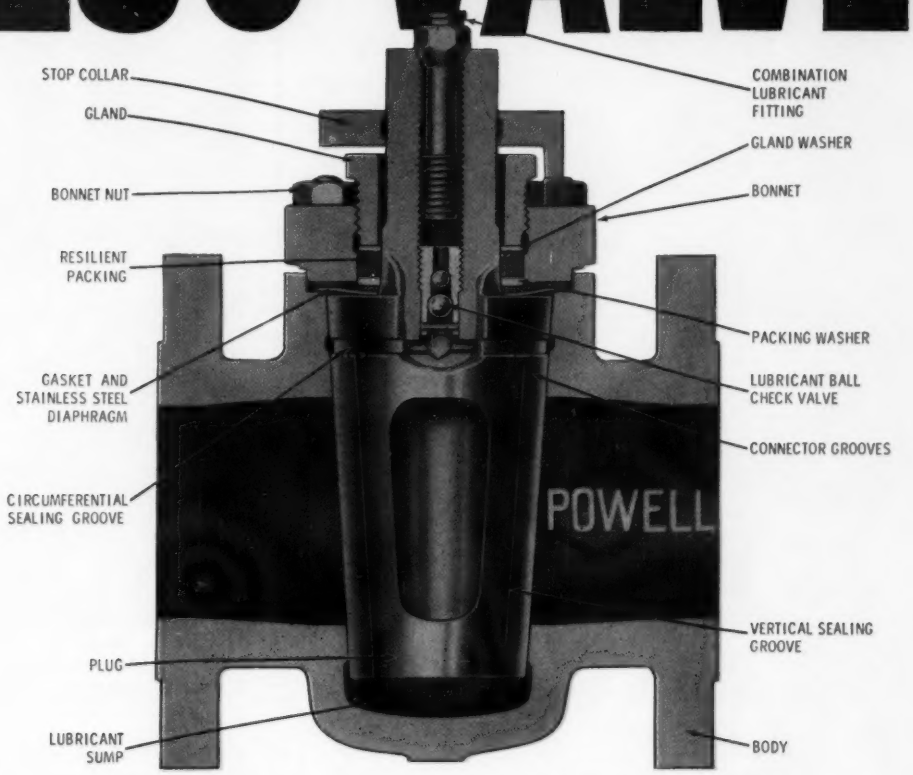
Further data on CMI Industrial Vacuum Cleaner—**Alton Cadenhead,** Elm City Plant, Callaway Mills Co., LaGrange, Ga.; **Theodore P. Curtis,** supt., Woonsocket Textiles, Inc.; Manville, R. I.; and many others.

More information on the Draper shuttleless loom—**James E. Robinson, Jr.,** asst. supt., Washington Mills Co., Fries, Va.

Who makes the tension recorder shown on p. 64 of TI for Jan. 1959? —**C. S. Jones,** supt., Montreal Cottons Ltd., Valleyfield, P. Q. (It's sold by Universal Winding Co.)

POWELL

LUBRICATED PLUG VALVES



Sectional view Powell Screwed Gland Lubricated Plug Valve.

Like all Powell Valves, Powell Lubricated Plug Valves are superior in their field . . . and have many advantages over other conventional types of Valves.

- Simple design: only three basic parts—Body, Bonnet, Plug.
- Quick, complete shut-off—a quarter turn will close or open the valve.
- Tapered Plug assures positive seating.
- Machined surfaces of plug and body are not exposed in the open position. Any media adhering to the plug when in the closed position is removed when plug is rotated.
- Cavity-free straight passage assures streamlined flow in either direction. Scale and sediment cannot collect.

Powell Lubricated Plug Valves are available in sizes ½" through 16", depending on the type required—Semi-steel 175 and 200 pounds WOG;—Carbon Steel ASA 150 and 300 pounds.

Powell can also furnish Lubricated Plug Valves in other alloys on special order.

For all your valve needs, make it a policy to consult your local Powell Distributor—or write directly to us.

THE WM. POWELL COMPANY

Dependable Valves Since 1846 • Cincinnati 22, Ohio

WHAT (you may ask) is a SALES ENGINEER from Stowe-Woodward?

First, he is a man.

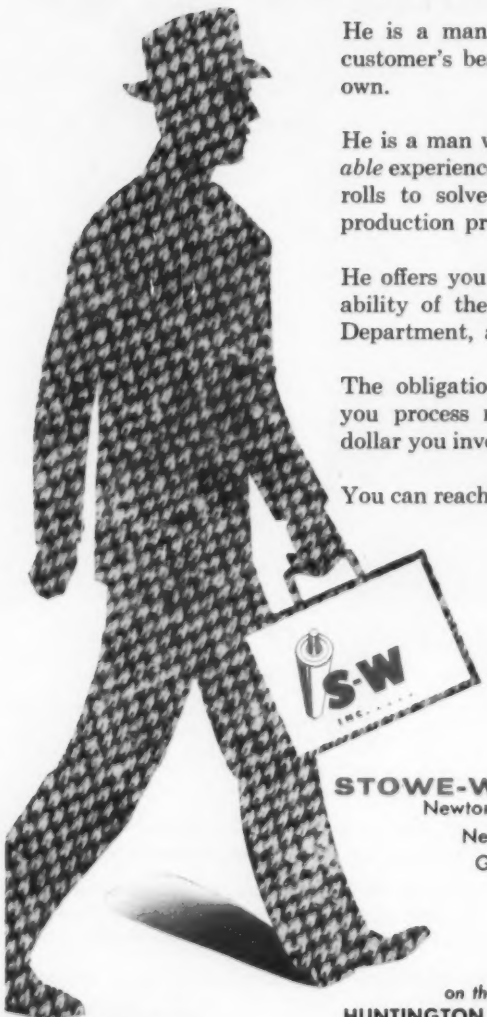
He is a man who *always* places his customer's best interests ahead of his own.

He is a man with many years of *valuable* experience in using rubber-covered rolls to solve knotty processing and production problems.

He offers you his experience, plus the ability of the S-W Technical Service Department, at no obligation to you.

The obligation is all his — to help you process more product for every dollar you invest in rolls.

You can reach him by calling S-W.



STOWE-WOODWARD, INC.
Newton Upper Falls, Mass.
Neenah, Wisconsin
Griffin, Georgia

on the West Coast
HUNTINGTON RUBBER MILLS, INC.
Seattle, Washington • Portland, Oregon
Port Coquitlam, Vancouver, Canada

Whatever you buy
IN TEXTILES "made in U.S.A."
gives quality you can trust

Textiles U.S.A. are promoted with these stickers. Ask for your free supply.

PERSONAL NOTES

At the recent convention of American Cotton Manufacturers Institute, **James A. Chapman,** president of Inman and Riverdale Mills, Inman, S. C., was elected president. **J. M. Cheatham,** president of Dundee Mills, Inc., Griffin, Ga., is first vice-president and **Robert Davidson Hall,**

Mr. Chapman *(above left)*
Mr. Cheatham *(above right)*
Mr. Hall *(left)*

who is president of Belmont Hosiery Mills and Belmont Knitting Co. and secretary-treasurer of Climax Spinning Co., Majestic Manufacturing Co., Sterling Spinning Co., and Stowe Thread Co., all in Belmont, N. C., has become second vice-president.

Officials and personnel of Abney Mills recently honored **M. H. Seigler,** general manager of the Belton, Anderson, and Courtney plants, at a dinner. The occasion was Mr. Seigler's retirement from active business life. His career in textile manufacturing began in 1905.

John McGuire has succeeded **T. R. Redlack** as general manager of the Stony Point, N. C., plant of Airedale Worsted Mills, Inc.

The American Thread Co. has appointed **Arthur B. Hall** director of industrial engineering. He will continue as director of industrial and

(Continued on page 32)

Keep your spindles running clean and trouble-free with Gulfspin . . .

GULF MAKES THINGS RUN BETTER!

Do your spindles run smoothly year after year? If not, chances are you can save time and money by switching to Gulfspin—the oil that helps you cut costs 3 ways.

1. You save cleaning costs with Gulfspin—because its high oxidation stability resists the formation and deposit of sludge, gum, resin and rust. You don't have to pump your spindle bases as often. In some mills, spindles have run clean and trouble-free for more than ten years with Gulfspin.

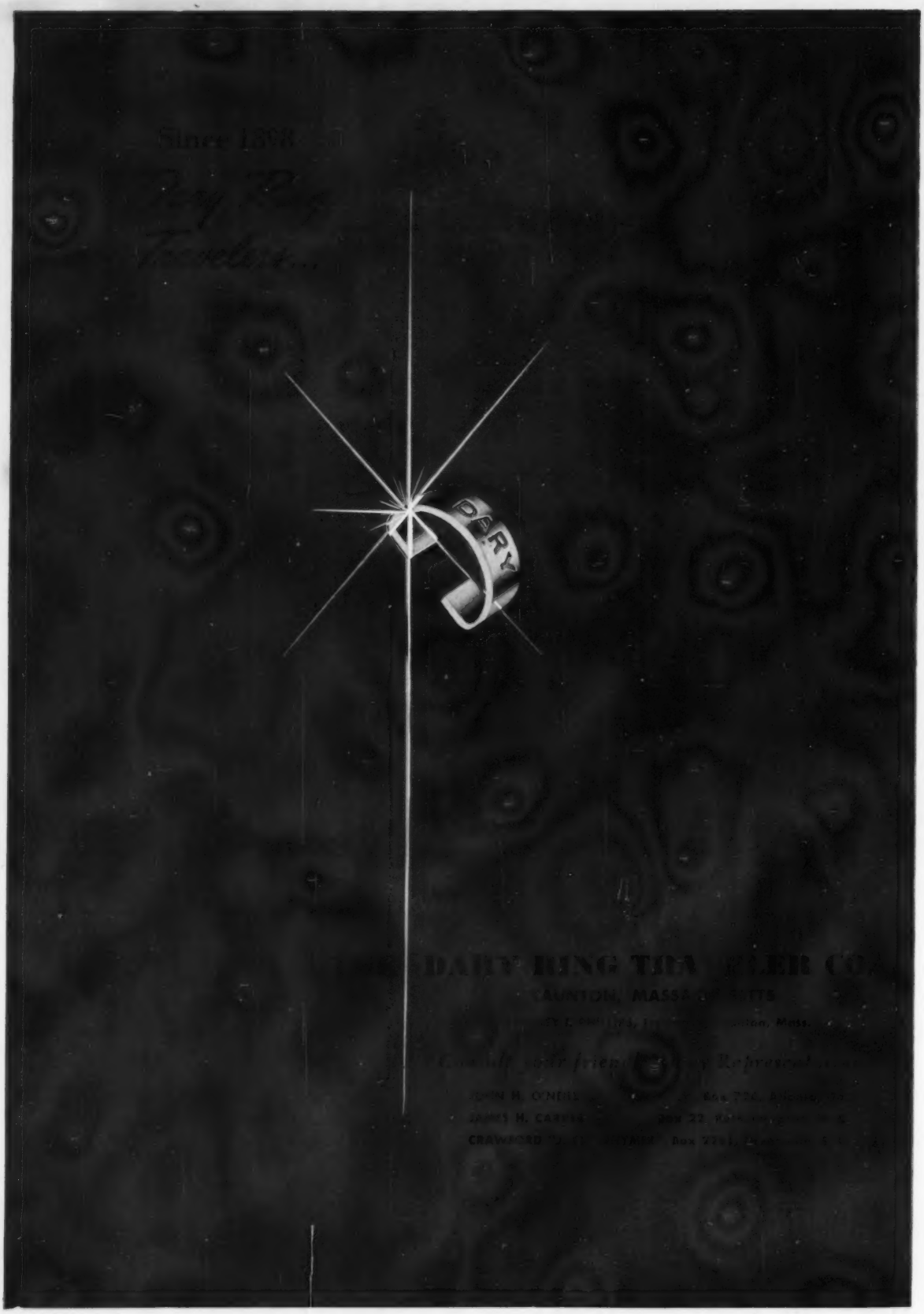
2. You save power costs with Gulfspin—because it does not increase in viscosity even after long service. Spindles run easier. And starting torque is reduced.

3. You save maintenance costs with Gulfspin—because it has the load-carrying ability to keep spindles running smoothly—longer. Gulfspin gives spindles an extra margin of protection against high temperatures and excessive wear.

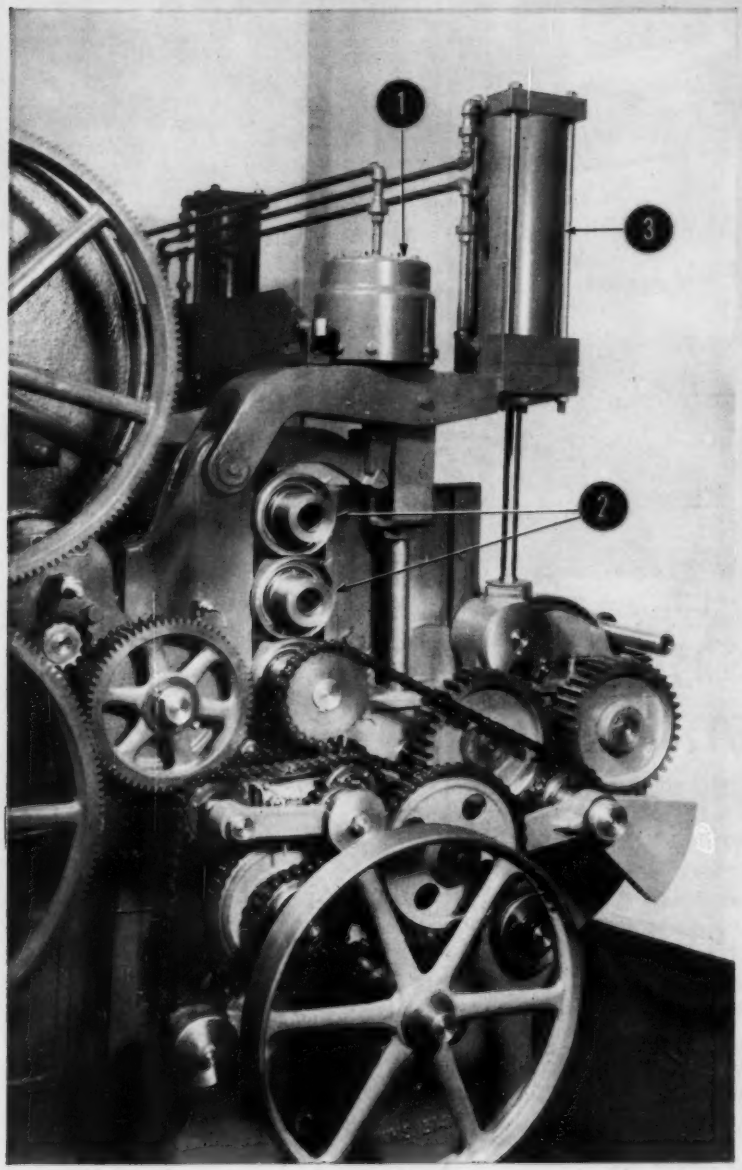
See how Gulf makes things run better! For information on the right grade of Gulfspin for your specific needs, contact a Gulf Sales Engineer at your nearest Gulf office, or write for Gulfspin folder.

GULF

GULF OIL CORPORATION • Dept. DM, Gulf Building • Pittsburgh 30, Pa.


Since 1808
DARY RING TRA
TAUNTON, MASS.

The ALDRICH HIGH COMPRESSION CALENDER



1 Diaphragm air cylinders, having neither pistons nor stuffing boxes, apply resilient pressure up to 12,000 pounds upon the calender rolls. Resilient pressure gives more uniform calendering, and protects the calender from shock loads. All pressure is released each time the calender stops, and is instantly applied when it starts.

2 Meehanite calender rolls, stronger and smoother than grey iron, are carried on roller bearings which fit standard roll necks. The special mountings for these bearings keep the rolls perfectly aligned at all times. This is very important where more than three times the usual pressure is applied to the rolls.

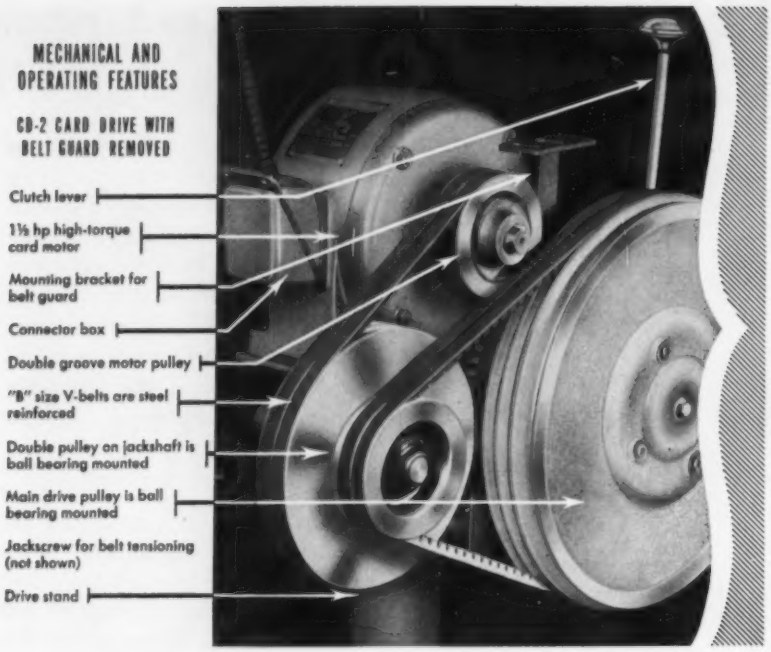
3 Air cylinders apply pressure directly to the top of each calender rack. Both calender racks are tied together with the usual cross shaft to prevent big-ended laps, which will not feed well on the cards.

The racks rise automatically when the calender stops for doffing, but are run down independently by the picker tender after the lap pin is threaded.

The chain drive replaces most of the gears and gives better control of drafts and quieter operation. Chains are oiled by automatic forced-feed system which also oils gears.

The elimination of the old drop-shaft gearing is particularly desirable. The drop-shaft is now mounted on self aligning ball bearings.

AldricH MachinE WorkS
Greenwood, South Carolina


MECHANICAL AND OPERATING FEATURES
CD-2 CARD DRIVE WITH BELT GUARD REMOVED
Clutch lever
1½ hp high-torque card motor
Mounting bracket for belt guard
Connector box
Double groove motor pulley
"B" size V-belts are steel reinforced
Double pulley on jackshaft is ball bearing mounted
Main drive pulley is ball bearing mounted
Jackscrew for belt tensioning (not shown)
Drive stand

ONLY SOUTHERN STATES TYPE CD-2 INDIVIDUAL DRIVE FOR COTTON CARDS OFFERS ALL THESE FEATURES

The CD-2 Individual Card Drive is the simplest, safest, and most efficient drive on the market today. It combines into one unit the features most wanted by mill men when specifying a drive for cotton cards. Here is why:

Finger-Tip Control: No changes in operating procedure. The unit is controlled by a simple clutch lever in both starting and hand stripping.

Full Speed in Seconds: A 1½ hp high torque card motor smoothly brings the card into full operation, seconds after the clutch is engaged.

Safety Engineered: All belts and moving parts are covered. Starting and idling is accomplished by the clutch lever. Stripping is done in the conventional manner.

Rugged Construction: The entire unit is built for heavy-duty service: steel main stand; cast iron jackshaft bracket and main pulley; cast aluminum cover; ball bearing construction throughout.

Easy Installation: Fits any cotton card. Minimum number of holes to drill in frame. Drive pulley, collar and clutch are preassembled and slip on shaft using existing keyway.

See your Southern States representative for all the facts, or you may write direct for Bulletin 301-a.

SOUTHERN STATES
EQUIPMENT CORP.
HAMPTON, GEORGIA

PERSONAL NOTES

(Continued from page 28)

public relations. **A. Keith Pooser** has been advanced to chief engineer from his former post of general manager, southern mills, and **Woodrow Decker** has become manager of the Milo, Me., spool mill.

Anniston (Ala.) Manufacturing Co. has elected **Frank C. Bennett** to the offices of president and treasurer. He succeeds **W. B. Pennington,** who has announced his impending retirement.

Artloom Industries, Philadelphia, Pa., has elected **Dr. Gerald E. Herrnstadt** vice-president of production and product development.

O. D. Boyd, vice-president and general manager of the Martel-Henrietta division of Burlington Industries Cotton Mills, has transferred to the group's main office in Greenville, S. C., where he will be concerned with over-all manageagement of the group. **Frank H. West** was named general manager of the Caroleen, Henrietta, and Asheville, N. C., mills, and **W. H. Lowe** has become general manager of the Valley Falls and Cherokee Falls, S. C., plants. All are members of the Burlington Industries, Inc., organization. * * * **Grover C. Furr, Jr.,** has been elected president of the Burlington Mills Hosiery Co. of Canada, Ltd. He was formerly a vice-president and has been general manager of the Canadian hosiery division since it was organized.

Callaway Mills Co., LaGrange, Ga., has promoted **Alonzo Murphy** to Unity production supervisor and overseer screen printing. Mr. Murphy has been with the firm since 1942.

Dixie Mercerizing Co., Chattanooga, Tenn., has announced the promotion of **Rex Childers** to superintendent of carding, and **Burke Combs** to assistant to plant manager.

Richard Copp has become superintendent of dyeing operations at the Montmorency Falls, Que., plant of Dominion Textile Co., Ltd. Mr. Copp was previously superintendent of dyeing at the Bridgeton, N. J., plant of Aberfoyle Manufacturing Co.

Mr. Peck
Chicopee

Mr. Kapolka
Chicopee

Mr. Lenk
Chicopee

Mr. Henderon
Deering Milliken

The Chicopee Manufacturing Corp. has promoted three men to management positions at the company's non-woven fabrics manufacturing plant in Milltown, N. J. **Frederick R. Lenk** was named assistant plant manager; **John F. Peck**, superintendent of finishing; and **Joseph J. Kapolka**, superintendent of production.

Dan T. Henderson has accepted a position with the Deering Milliken Research Corp. in Spartanburg, S. C. He was previously public relations field representative in South Carolina for the American Cotton Manufacturers Institute.

J. Morgan Davis has assumed his new position as manager of the Coats & Clark, Inc., Acworth, Ga., plant. Mr. Davis succeeded **Edgar Hembree** who has been transferred to the New York office to train for another position.

Continental Mills, Inc., Lewiston, Me., has appointed **George R. Caron** treasurer. He replaces **Guy H. Critcherson** who has retired after having been with the firm for 35 years.

J. Henry Coogan has assumed his new duties as assistant general manager of Cranston (R. I.) Print Works, headquartering at the firm's main offices. He was succeeded as resident manager of the Webster, Mass., division by **Albert S. Jones** who had been plant superintendent, a position now held by **Gerald Bam Stackpole.**

(Continued on page 36)

SOUTHERN STATES' NEW COILER LINE HAS ALL ENGINEERING AND DESIGN FEATURES WANTED BY MILL MEN

To provide mills with a premium-quality coiler, every engineering and design feature wanted by mill men has been included on the new Southern States Coilers.

A new center adapter (see cutaway view above) permits the stand, head, and base to swivel as a unit within the adapter collar. The coiler may thus be offset for can diameters up to 20 inches and still maintain a straight gear drive take-off for coilers of all makes.

Southern States Coilers are designed for direct attachment to any make of card, left or right hand. Installation is rapid and economical. Other outstanding features of the Southern States Coiler include: ball bearing throughout—head, shaft, cantable ... cut tooth gears throughout ... tubular steel stand ... precision-ground calender rolls ... self-aligning pillow blocks on upright and calender roll shafts ... fully adjustable can table ... quickly detached coil spring roll-loading device ... and many others fully described in our Technical Bulletin 205, available from your Southern States representative or by mail direct from us.

SOUTHERN STATES
EQUIPMENT CORP.
HAMPTON, GEORGIA

For further information use Handy Return Card, Page 205

MODEL 77 CONE

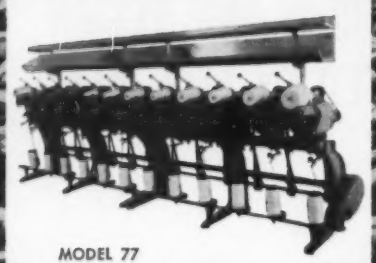
MODEL 78 CONE

MODEL 35 CONE

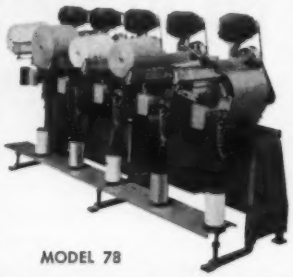
FOSTER MACHINES

For Winding Tufted Textile Yarns

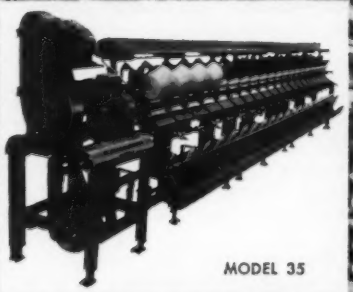
Let Us Recommend
the One Best Suited to Your Requirements



MODEL 77



MODEL 78



MODEL 35

Each of these machines is designed for a different situation. Each does a highly creditable job within its scope. Here are the details: —

MODEL 78 — This machine (built in 5 spindle units) produces 8" to 10" traverse, precise wind cones up to 16" in diameter and weighing up to 35 lbs. each. Ball bearing spindles are individually motor driven at speeds up to 800 R.P.M. It has controlled slow start and spindle brake, heavy duty belt gainer with hand wheel adjustment (or positive gear gainer, if desired), positive size stop, electric drop wire and expansion type cone holders, with handle control, for easy donning and doffing. Will wind overend from bobbins or from swifts, reels or unrolling devices.

MODEL 77 — Built in 6 spindle sections, produces 4" to 8" traverse, precise wind cones up to 10" in diameter and weighing up to 14 lbs. each. Ball bearing spindles, individually belt driven by one motor, run at speeds up to 1100 R.P.M. It has a positive, long wearing package brake and positive solid tapered pulley belt gainer. It will wind overend from bobbins, or from swifts, reels or unrolling devices. 90° build-up from face of cone prevents broken back or under-wound packages.

MODEL 35 — Built in units of 10 spindles to 80 spindles. Produces open wind 8" traverse cones up to 11" in diameter and weighing up to 9 lbs. each. Winding speeds from bobbins is from 180 to 250 Y.P.M. and from skeins 100 to 150 Y.P.M. Standard taper cone holders are 7° 22½' and 3° 51'. Package brakes and disc waxing attachments are extra. Can be equipped to wind from swifts, etc. as well as from bobbins.

Write for Model 78 bulletin A-98A, Model 77 bulletin A-99, or Model 35 bulletin B-46A.

FOSTER MACHINE COMPANY

Westfield, Massachusetts, U.S.A.

Member of
American Textile Machinery Association

Southern Office, Johnston Bldg., Charlotte, N. C.
Canadian Representative, Ross Whitehead & Company Limited, 2015 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ont.

European Representative, Muschamp Textile Machinery Limited, Keb Lane, Bardsley, Oldham, England.

135-B

Puritan's Engineered Maintenance reduces floor-cleaning and sealing problems for The American Thread Company

"We're saving 30% on costs... and our floors stay in better condition longer"

"ENGINEERED MAINTENANCE gets my vote! By applying technical know-how, furnishing adequate supervision, and providing proper supplies and equipment, Puritan has helped us lick a difficult sanitary maintenance problem.

"Frankly," says J. C. Collins, Utility Foreman at The American Thread Company, Sevier, North Carolina, "I didn't think we could ever overcome it, but Puritan showed us how. Now our custodians are proud of the job they are able to do."

The American Thread Company was faced with the problem of paraffin being tracked from area to area throughout its large, modern mill. With the installation of Puritan's ENGINEERED MAINTENANCE program, this condition has been reduced to a minimum with a very considerable saving in cost.

Systemized sanitation

Your plant has its own special requirements and desirable level of sanitary maintenance. The ENGINEERED MAINTENANCE program Puritan recommends for your company is prepared for your individual needs. A specially trained Puritan representative surveys your buildings personally. On the basis of this on-the-scenes report, a team of Puritan specialists prepares day-to-day, week-to-week and month-to-month procedures.

They set these up for you on an engineered basis...train your janitors and porters...call regularly to review progress and provide further training as needed.

This entire program costs you nothing

Puritan means exactly that. No strings. As a user of Puritan sanitary maintenance products you receive the service free.

Meanwhile you are not tieing yourself down in any way. Nationally used Puritan products are competitively priced and fully guaranteed. You are not asked to sign any long-term contract. You pay nothing extra—either directly or indirectly. The burden of proof is upon us.

Frees your time at once

ENGINEERED MAINTENANCE starts to take nuisance details off your hands from the very first day. You have additional hours to devote to management responsibilities... doubly important today when increased investments in labor, materials and equipment place a premium on efficient operation. ENGINEERED MAINTENANCE is a tested method of controlling sanitary maintenance...conveniently ...surely...economically.

A good way to start

Send for "ENGINEERED MAINTENANCE." This new technical booklet shows you precisely how Puritan helps you achieve trouble-free maintenance...cut your company's costs...save your own time.

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PURITAN CHEMICAL COMPANY

EXECUTIVE OFFICES: 916 ASHBY STREET, N. W. • ATLANTA 18, GEORGIA

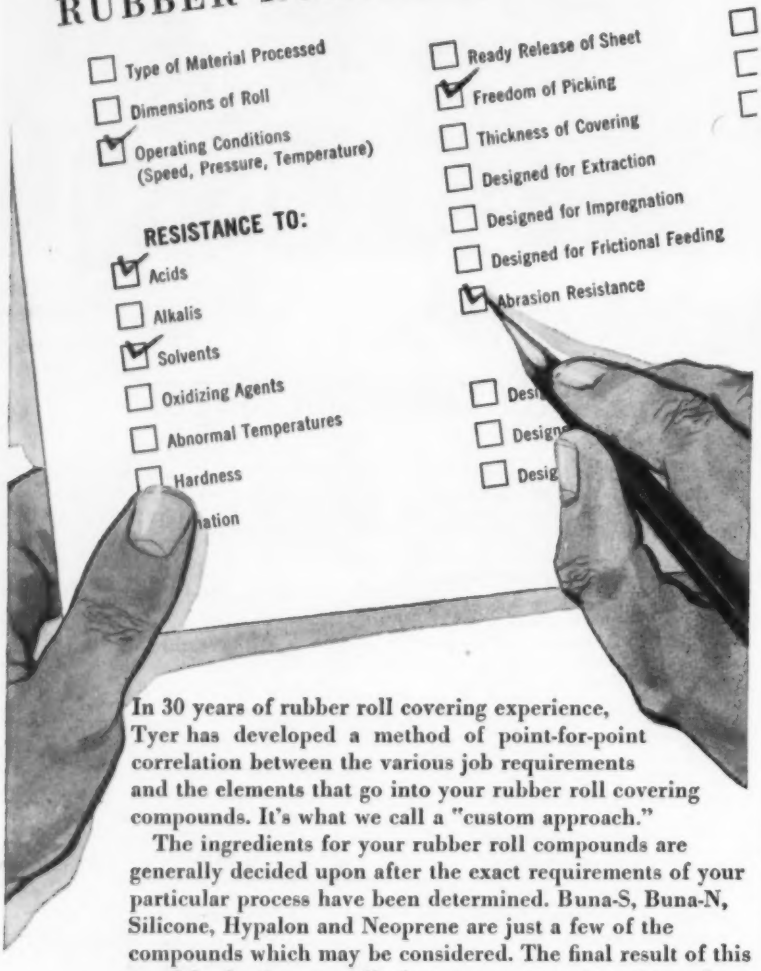
PLANTS & WAREHOUSES: ATLANTA, GEORGIA • HOUSTON, TEXAS • ST. LOUIS, MISSOURI

TYER'S CUSTOM APPROACH TO...

RUBBER ROLL COMPOUND SELECTION

First we check your . . .

RUBBER ROLL REQUIREMENTS



In 30 years of rubber roll covering experience, Tyer has developed a method of point-for-point correlation between the various job requirements and the elements that go into your rubber roll covering compounds. It's what we call a "custom approach."

The ingredients for your rubber roll compounds are generally decided upon after the exact requirements of your particular process have been determined. Buna-S, Buna-N, Silicone, Hypalon and Neoprene are just a few of the compounds which may be considered. The final result of this careful selection are rolls that give you consistently good performance and maximum wear.

Write today for additional information or a visit from a Tyer sales engineer.

TYER *Rubber Company*

ANDOVER, MASSACHUSETTS, U. S. A.

PERSONAL NOTES

(Continued from page 33)

Dan River Mills, Inc., Danville, Va., has named **L. Aubrey Goodson, Jr.,** to the post of director of research. He replaces **Dr. Harley Y. Jennings,** who has retired after 16 years with the company. In making the announcement a company spokesman noted that Dr. Jennings is credited with many developments "which have resulted in better quality fabrics and manufacturing economies. The new research and chemical manufacturing plant which the company has announced will be constructed in the near future . . . . will serve as a lasting monument to his administration of Dan River's vital research and development program."

The board of directors of Collins & Aikman has appointed **George T. Simpson** and **W. H. Sparks** vice-presidents. Mr. Simpson is general

Mr. Sparks

Mr. Simpson

manager of the Yarn Division, and Mr. Sparks is general manager of the Mayfair Carpet Division.

Officials of Drayton Mills, Spartanburg, S. C., have designated **Elton D. Crenshaw** plant manager. Mr. Crenshaw comes to his new position from Createx Corp. of Deering Milliken Research Center. His duties include responsibility for manufacturing and merchandising.

Milliken Woolens, Inc., New York City, has named **Jack Fisher,** formerly general manager of Abbeville (S. C.) Mills, a vice-president of the firm. He continues in charge of men's wear fabric sales and yarn sales.

Riegel Textile Corp. has appointed **Arthur Tinsley** supervisor in charge of chemical manufacturing in the research and development division at Ware Shoals, S. C.

(Continued on page 38)

HARSHAW UVERSOFT "D"

imparts soft hand with little reduction in moisture absorbency

● UVERSOFT "D" is a cationic surface active agent which produces a full, soft hand with little, if any, reduction in moisture absorbency of the TREATED material. It can be exhausted from a long bath, and has an excellent retention in an aqueous system. UVERSOFT "D" provides a maximum economy in application and use.

UVERSOFT "D" is an outstanding anti-static agent. It should be considered for situations where the accompanying softening action is not objectionable.

Send for folder containing complete technical information.

THE HARSHAW CHEMICAL COMPANY ● 1945 East 97th St., Cleveland 6, Ohio

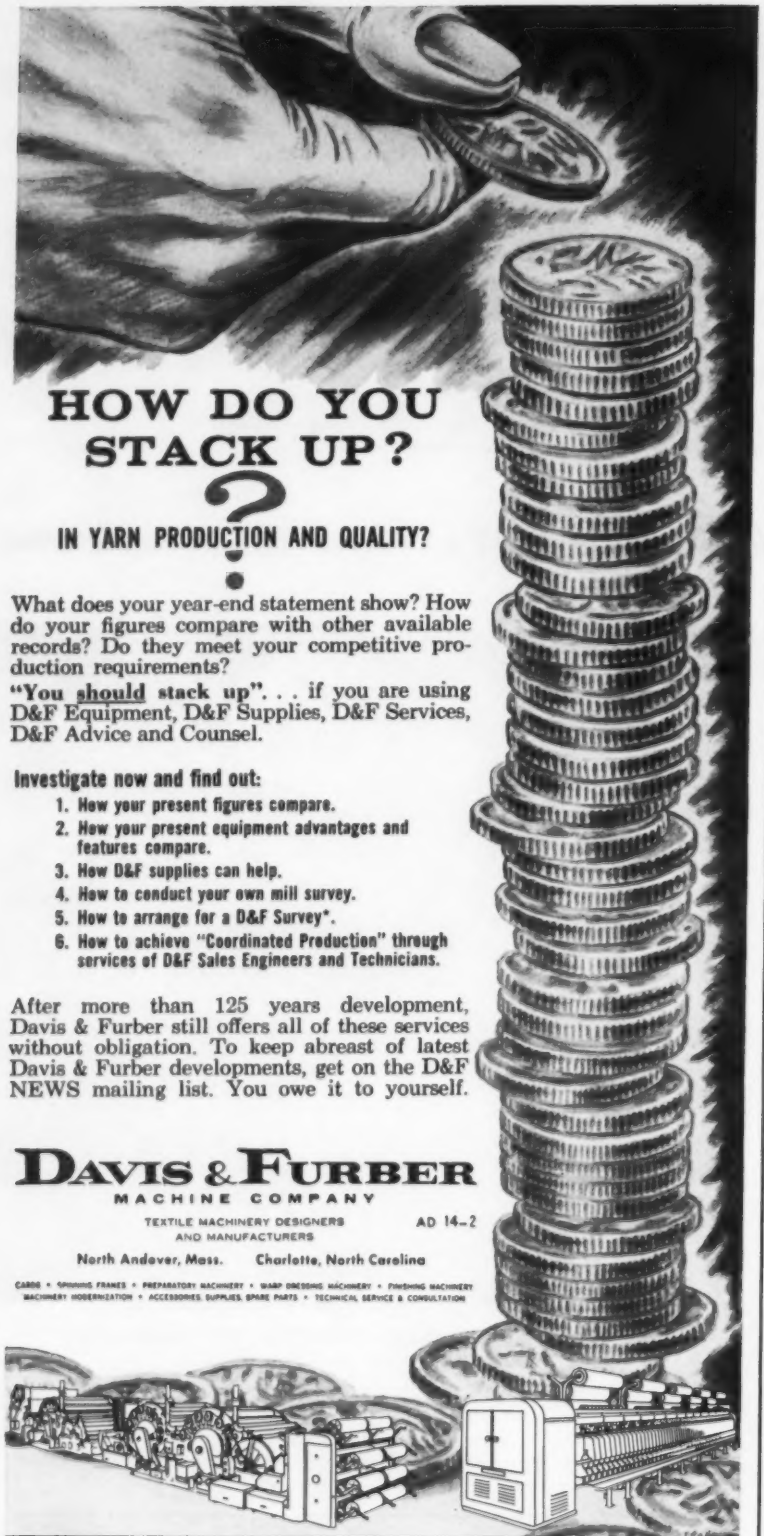
Send me TECHNICAL BULLETIN ON UVERSOFT "D"

My Name_____

Company Name_____

Street Address_____

City_____ Zone____ State_____



HOW DO YOU STACK UP?

IN YARN PRODUCTION AND QUALITY?

What does your year-end statement show? How do your figures compare with other available records? Do they meet your competitive production requirements?

"You should stack up". . . if you are using D&F Equipment, D&F Supplies, D&F Services, D&F Advice and Counsel.

Investigate now and find out:

1. **How your present figures compare.**
2. **How your present equipment advantages and features compare.**
3. **How D&F supplies can help.**
4. **How to conduct your own mill survey.**
5. **How to arrange for a D&F Survey*.**
6. **How to achieve "Coordinated Production" through services of D&F Sales Engineers and Technicians.**

After more than 125 years development, Davis & Furber still offers all of these services without obligation. To keep abreast of latest Davis & Furber developments, get on the D&F NEWS mailing list. You owe it to yourself.

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MACHINE COMPANY
TEXTILE MACHINERY DESIGNERS AND MANUFACTURERS
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CARDS • SPINNING FRAMES • PREPARATORY MACHINERY • WARP DRESSING MACHINERY • FINISHING MACHINERY
MACHINERY MODERNIZATION • ACCESSORIES, SUPPLIES, SPARE PARTS • TECHNICAL SERVICE & CONSULTATION

**An objective, impartial D&F Survey by mill-trained technicians often reveals unsuspected inconsistencies. At the same time, a study of all production phases can produce a long or short range plan for expansion in accordance with time and budget requirements.*

PERSONAL NOTES

(Continued from page 33)

Additional labor duties were assigned to **J. E. Murphy** by Goodyear Tire & Rubber Co. when he was designated Labor Relations Administrator, Fabric Mills. He will be in charge of coordinating labor relations policies at the company's four fabric mills. Mr. Murphy retains the duties of personnel manager.

OBITUARIES

Ernest N. Chamberlain, 54, former executive vice-president of Botany Mills, Racine, Wis.

Robert M. Hanes, 68, former textile executive, Winston-Salem, N. C.

Ralph Manning Holt, 61, president of Holt Hosiery Mills, Inc., and Holt Hosiery Corp., Burlington, N. C.

John H. Huff, 82, retired superintendent of Camperdown Mill, Greenville, S. C.

John A. Lyons, retired vice-president of Orr-Lyons Mills, Anderson, S. C.

W. H. Miley, Jr., 61, manager of Erwin Mills, Inc., Plants No. 2 and 5, Erwin, N. C.

Harvey W. Moore, 74, textile executive, Charlotte, N. C.

Arthur L. O'Leary, 74, retired president of Lambeth Rope Corp., New Bedford, Mass.

C. A. Potter, 54, vice-president and general manager of B. F. Perkins & Son, Inc., Holyoke, Mass.

Ben R. Rudisill, 42, president and treasurer of Carlton Yarn Mills, Gastonia, N. C.

Jack Hillman Scott, 35, administrative assistant, Carlton Yarn Mills, Gastonia, N. C.

Louis Sherer, 82, retired textile mill executive, Boston, Mass.

Charles F. Smith, 78, retired hosiery manufacturer, Marion, N. C.

Jacob N. Tobias, 64, secretary of Berkshire Knitting Mills, Reading, Pa.

Samuel C. Wadmond, 87, retired executive of Bradley Knitting Co., Minneapolis, Minn.

George H. Walker, 70, part owner and executive of Harwall Mills, Inc., Roselle, N. J.

George Calvin (Pete) Warren, Jr., technical superintendent, The Russell Manufacturing Co., Alexander City, Ala.

Richard E. Waterhouse, Jr., 68, retired woolen blanket manufacturer, West Warwick, R. I.

Harry Weissman, 66, partner of Purl Knit Fabrics Corp., Brooklyn, N. Y.

Cut Textile-mill Costs Three Ways with New General Electric Motors

- **LOW INITIAL COST**
- **REDUCED MAINTENANCE**
- **LONG MOTOR LIFE**

Now you can select new General Electric Tri-Clad* motors designed exclusively for maximum protection in the toughest textile-mill application conditions! And these special motors reduce your mill-operating costs by outperforming and outlasting other motors—*at no increase in initial cost!* Here's how you'll save with new G-E Textile Motors:

COMPLETE EXPULSION OF LINT by the exclusive new endshield design prevents damages caused by penetration of lint to the motor interior.

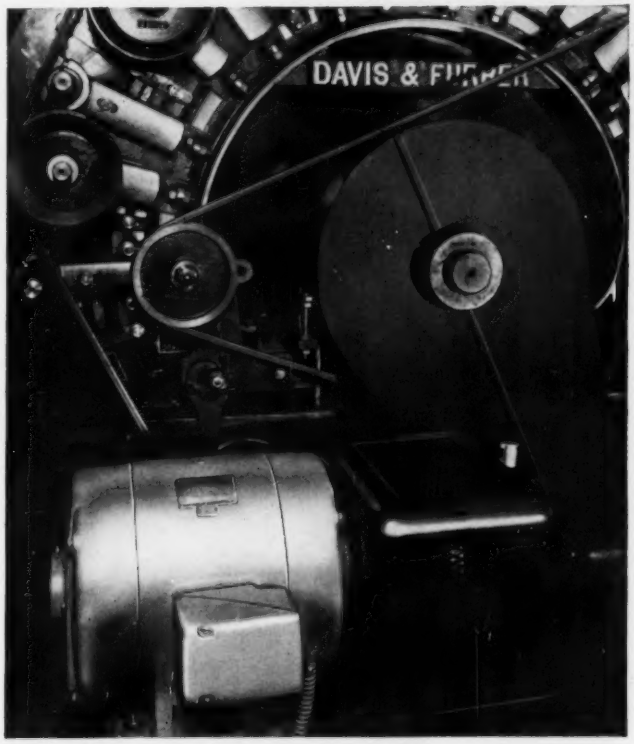
GREATER PROTECTION against dirt, moisture, other contaminants is provided by totally enclosed motor —virtually eliminating costly motor maintenance.

LONG-LASTING, OVERSIZED BALL BEARINGS and grease reservoir, plus extended close-running seals, mean increased motor life and performance.

MAXIMUM RIGIDITY AND STRENGTH of the cast-iron frame and endshields protects against accidental damage of G-E textile motors.

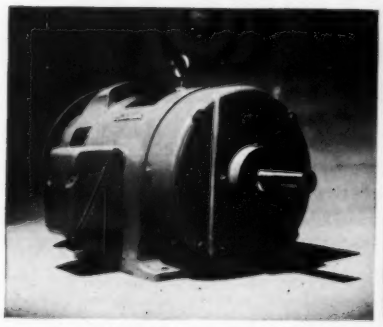
These are just a few of the reasons why new General Electric motors will reduce your textile-mill operating expenses. For the full story, just contact your nearby G-E motor distributor or Apparatus Sales representative; or write direct to Section 894-2, General Electric Company, Schenectady 5, N. Y.

*Registered trademark of General Electric Co.

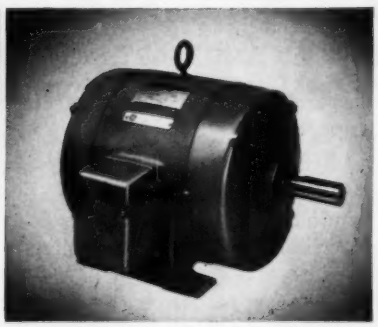


NEW RECORDS of performance and reliability are being set by spinning frames, pickers and opening equipment. Modern woolen card above is driven by General Electric screened dripproof motor.

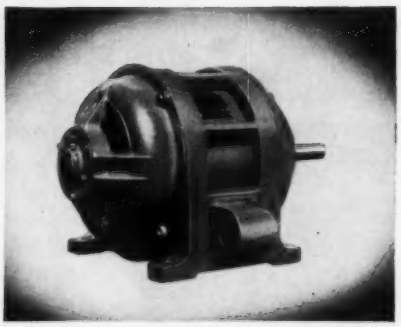
SELECT THE EXACT GENERAL ELECTRIC MOTOR FOR YOUR MILL REQUIREMENT



Totally enclosed, fan-cooled G-E textile motors available up to 30 horsepower.



Reliable G-E dripproof motors fill need for general purpose application.



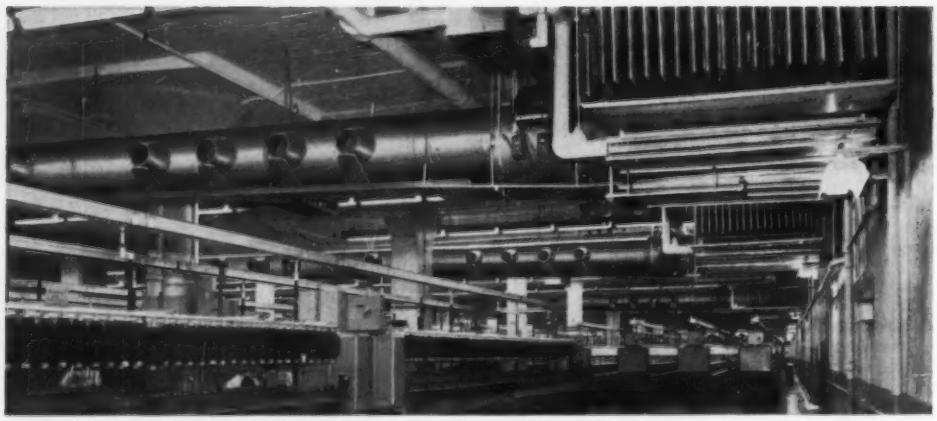
G-E screenless open motors are designed for textile needs from 30 to 100 hp.

Progress Is Our Most Important Product

GENERAL ELECTRIC

DAN RIVER'S
1st CHOICE 5 TIMES

Says BASIL D. BROWDER
Executive Vice-President
Dan River Mills, Danville, Va.



BAHNSON HUMIDUCTS

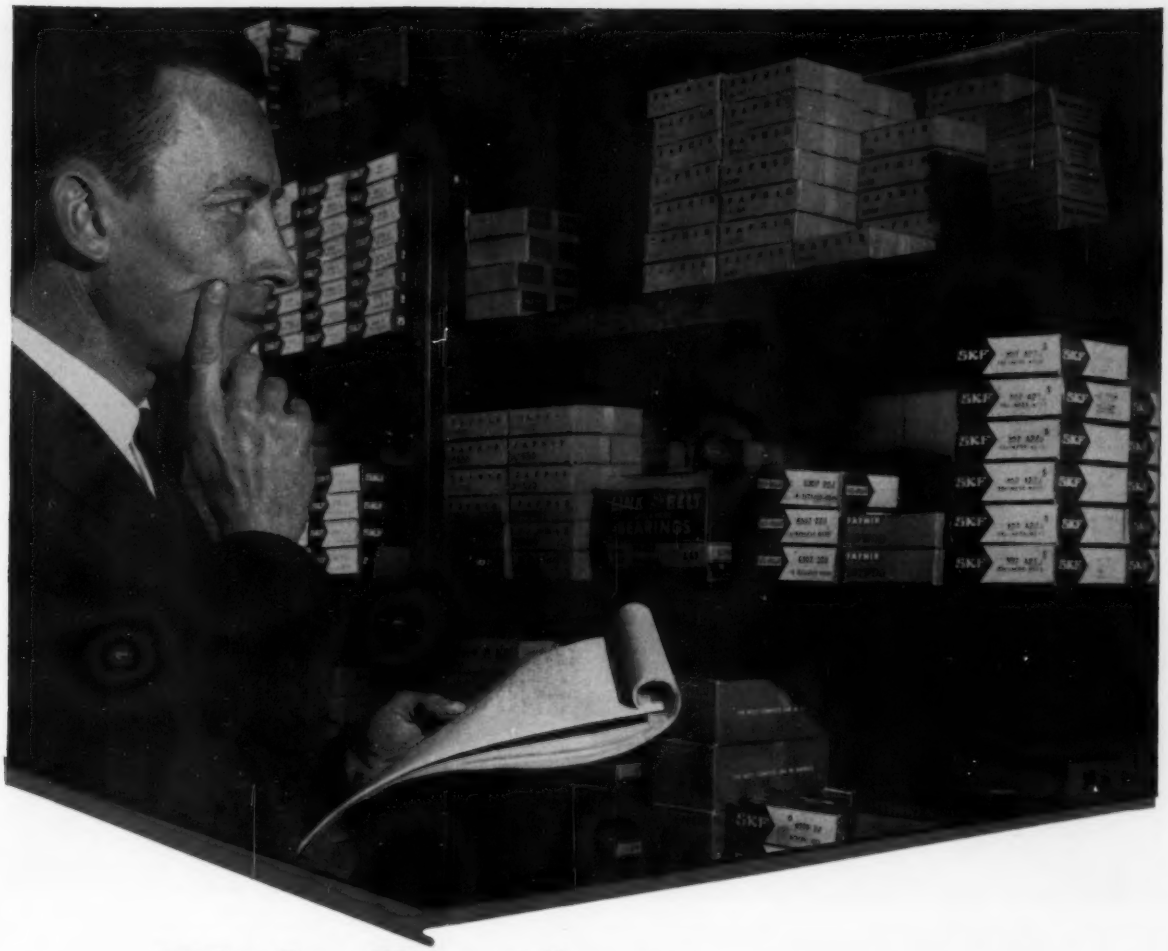
WITH REFRIGERATION AND EASY-FLO FILTERS PROVIDE FLEXIBLE UNIT-SYSTEM AIR CONDITIONING AT LOW COST

Free Illustrated Bulletins
For full details write for Humiduct Bulletin 4A, Easy-Flo Bulletin 27A.

"Five times in our decade of modernization," says Mr. Basil D. Browder, "we chose Bahnson Humiducts for Spinning and Weave Rooms at Dan River. Humiduct's versatile unit design gives us control flexibility for production requirements . . . Easy-Flo Filters provide clean air, reduce cleaning time . . . overtime maintenance is eliminated with Humiducts. We found that Humiduct's low first cost and efficient operation gave us the most modern and economical air conditioning for our needs."

Bahnson AIR-O-MATION
AIR AT WORK FOR INCREASED PROFITS

THE BAHNSON COMPANY
WINSTON-SALEM, N.C., U.S.A.



Dixie Bearings customers don't worry about inventory control...

They let us keep *their* worries in *our* stockroom. We make surveys of the immediate, as well as long range requirements for all bearings in their equipment. Those carried in their stock are fast-moving. Expensive precision bearings, specials and other bearings purchased infrequently are carried in the Dixie Bearings branch — ready for instant delivery, day or night.

If a shortage develops or production is interrupted, our customers know the bearings they need are in our stocks. A phone call and the bearings required will be on the way. Our customers know the value of this important service.

If bearing inventories are worrying *you*, why not call the Dixie Bearings branch nearest you for help.

Providing bearing service in the South

DIXIE BEARINGS, INC.

FLORIDA: Jacksonville • **GEORGIA:** Atlanta • **KENTUCKY:** Louisville
LOUISIANA: Baton Rouge • New Orleans • **N. CAROLINA:** Charlotte • Greensboro
S. CAROLINA: Greenville • **TENNESSEE:** Chattanooga • Kingsport • Knoxville • Nashville

Setting new standards in textile machine lubrication

NEW SHELL VEXILLA OILS

To assure high compatibility with today's synthetic fabrics, a completely new line of premium-quality textile machine lubricants has been developed—NEW SHELL VEXILLA OILS. These new oils are available in a wide viscosity range to satisfy all operating requirements.

Check these outstanding advantages:

1. Excellent Scourability—New Vexilla® Oils are *easily* and *readily* removed through conventional scouring procedures . . . completely eliminate oil stain problems.

2. High Oxidation Resistance—New Vexilla Oils contain special oxidation inhibitors to prevent increase of viscosity during service and storage. High viscosity index base oils minimize thinning out at high temperatures.

3. Eliminate Bearing Corrosion—New Vexilla Oils contain a newly developed rust inhibitor which keeps bearings *clean* and *free from corrosion*.

4. Non-Gummy—New Vexilla Oils contain no fixed oils such as lard, tallow and sperm oils to cause gumming. In automatic lubricating systems, they will not form harmful metallic soaps when in contact with zinc or copper.

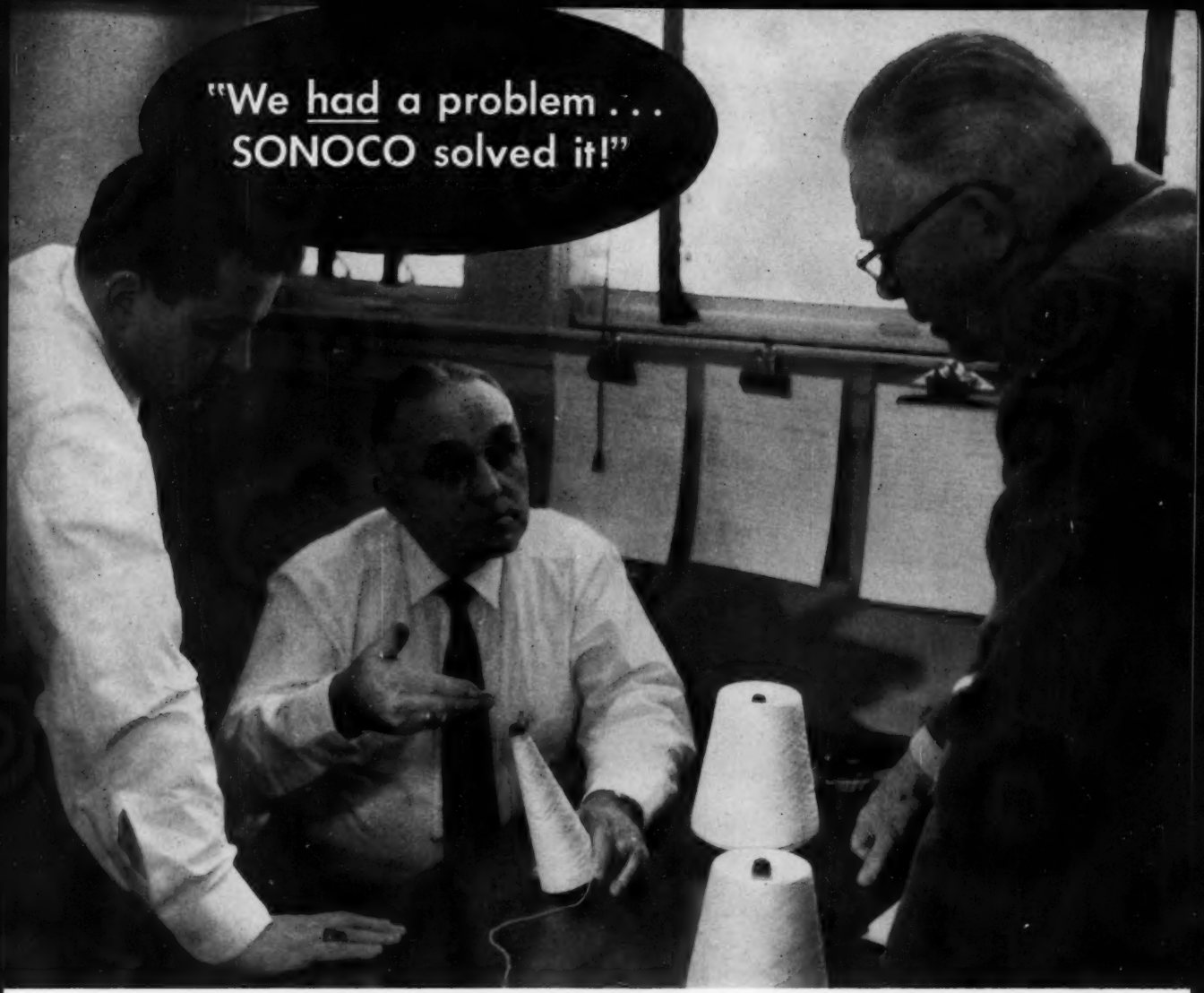
5. Outstanding Wetting Properties—New Vexilla Oils offer superior metal-wetting properties because of the carefully engineered balance of components and polar character.

The Shell Industrial Products Salesman will be glad to show you how to reduce maintenance costs and assist in the selection of the appropriate grades for *your* plant operation. Write Shell Oil Company, 50 West 50th Street, New York 20, New York. In Canada: Shell Oil Company of Canada, Limited, 505 University Avenue, Toronto 2, Ontario.

NEW SHELL VEXILLA OILS

. . . quality textile machine lubricants

SHELL



THE NEED: Cones for stretch and non-stretch bulk yarn.

Bulk or stretch yarns presented the textile industry with new packaging and production problems. A new type cone was required for packaging these processed yarns . . . a cone with a surface which would improve delivery and yarn transfer and with suitable colored tips to withstand special coning oils.

Sonoco technical and production "know-how" solved these problems fast. Special cone papers, and the application of Sonoco's previously developed cone tapers and surfaces — plus proper coatings for colored tips, are being used in the correct combinations to meet each mill's particular requirements.

Only Sonoco, with its modern research and production facilities could solve these problems with economical and efficient carriers. It is typical of countless cases where Sonoco leadership — based on 60 years' experience — has benefited the industry. You can depend on Sonoco!

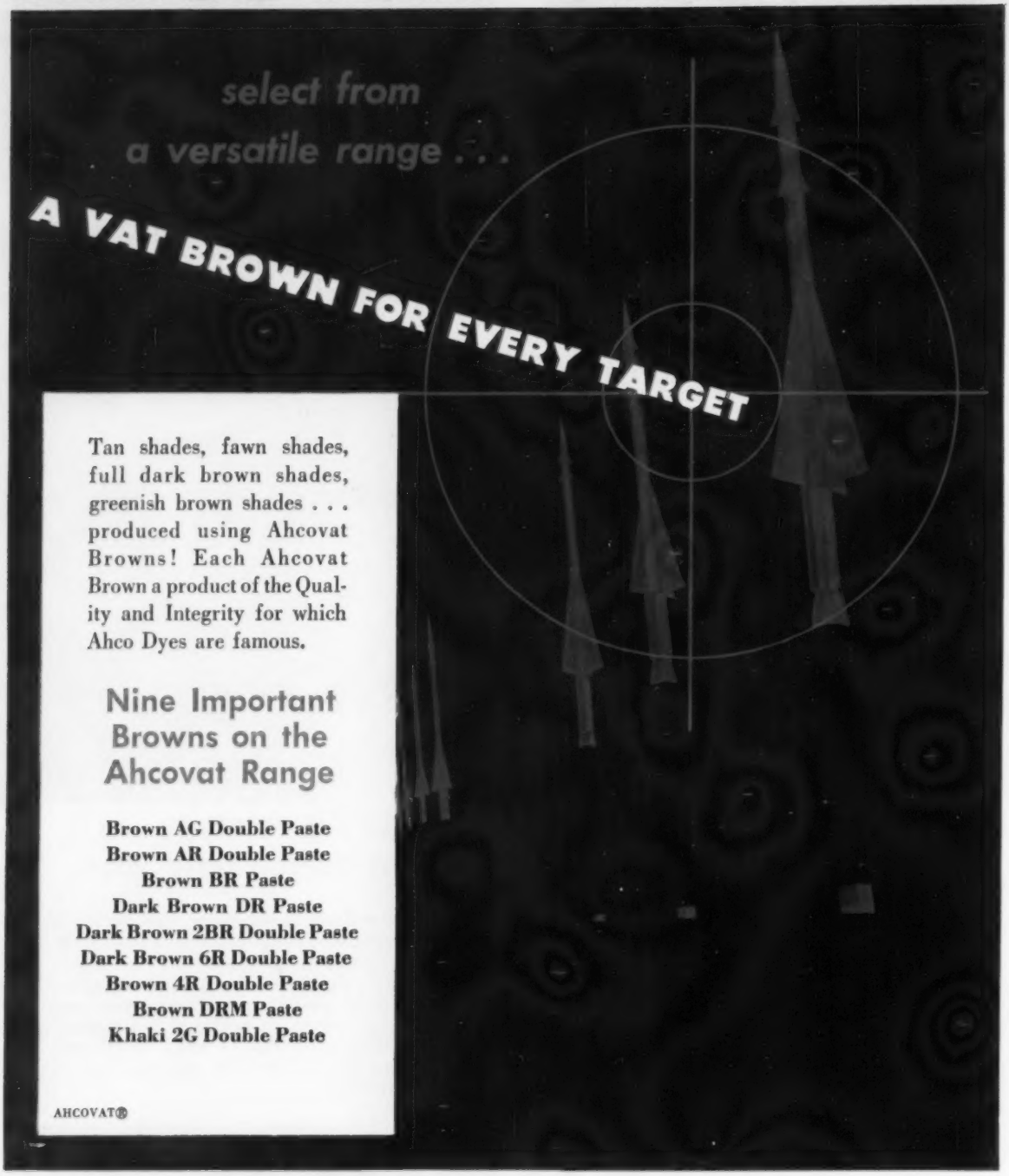
sonoco
Our 60th year
1899 - 1959

SONOCO
Products for Textiles
SONOCO PRODUCTS COMPANY

See us at Booths 507-508 Knitting Arts Exhibition May 4-8, 1959.

Main Office—Hartsville, S. C. • Mystic, Conn. • Akron, Ind. • Lowell, Mass. • Phillipsburg, N. J. • Longview, Texas • Philadelphia, Pa. • La Puente, Cal. • Atlanta, Ga. • Granby, Quebec • Brantford, Ontario • Mexico, D. F.

AHCOVAT BROWNS



Tan shades, fawn shades, full dark brown shades, greenish brown shades . . . produced using Ahcovat Browns! Each Ahcovat Brown a product of the Quality and Integrity for which Ahco Dyes are famous.

Nine Important Browns on the Ahcovat Range

Brown AG Double Paste
Brown AR Double Paste
Brown BR Paste
Dark Brown DR Paste
Dark Brown 2BR Double Paste
Dark Brown 6R Double Paste
Brown 4R Double Paste
Brown DRM Paste
Khaki 2G Double Paste

AHCOVAT®

Quality AHCO PRODUCTS Integrity

ARNOLD, HOFFMAN & CO., INCORPORATED
55 Canal Street, Providence, Rhode Island • Est. 1815
A Subsidiary of Imperial Chemical Industries Limited, England
West Coast Representative: Chemical Manufacturing Company, Incorporated of California

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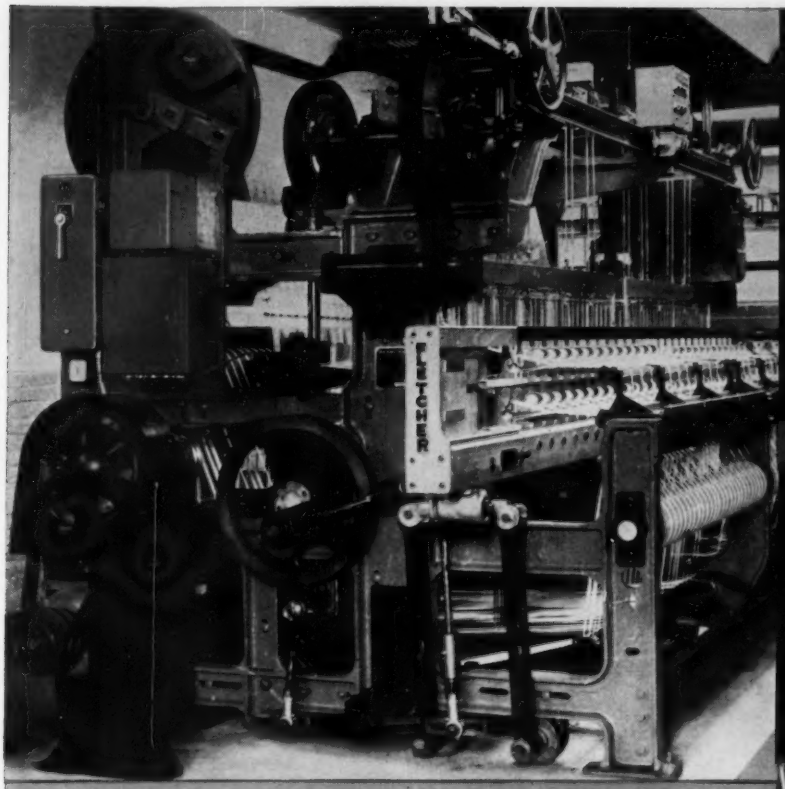


A-B QUALITY

Allen-Bradley Bulletin 712 combination starter on a Fletcher automatic, high-speed, narrow fabric loom.

FOR EXTRA SAFETY

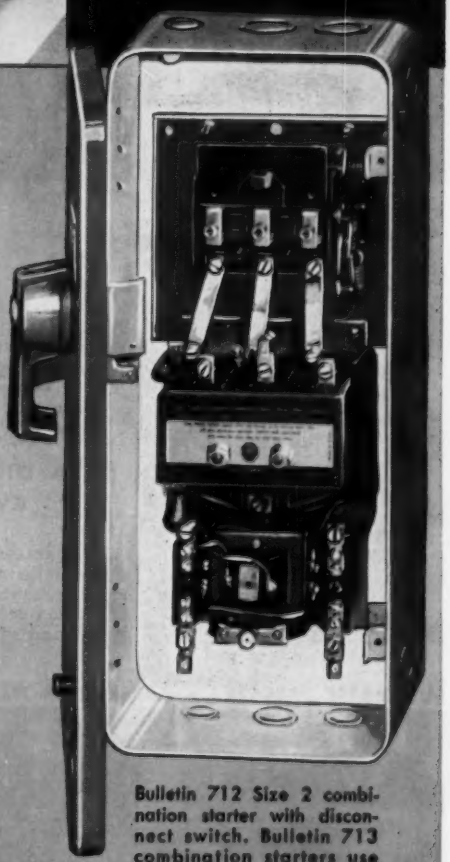
...specify Allen-Bradley Combination Starters

With Allen-Bradley combination starters, it's *safety*—first and foremost! Here you have the starter and manual disconnect switch in one cabinet . . . and the cabinet door cannot be opened unless the disconnect switch is open. In this position, all three movable contacts of the disconnect switch are *plainly* visible. The incoming live terminals are specially shielded—there's just no chance of coming in contact with a "hot" connection. In addition, the handle can be locked "off" or "on" with up to three padlocks of any type.

It will pay you to investigate these modern starters. They're safer—lower in installation cost—and neater in appearance than a separate starter and disconnect switch.

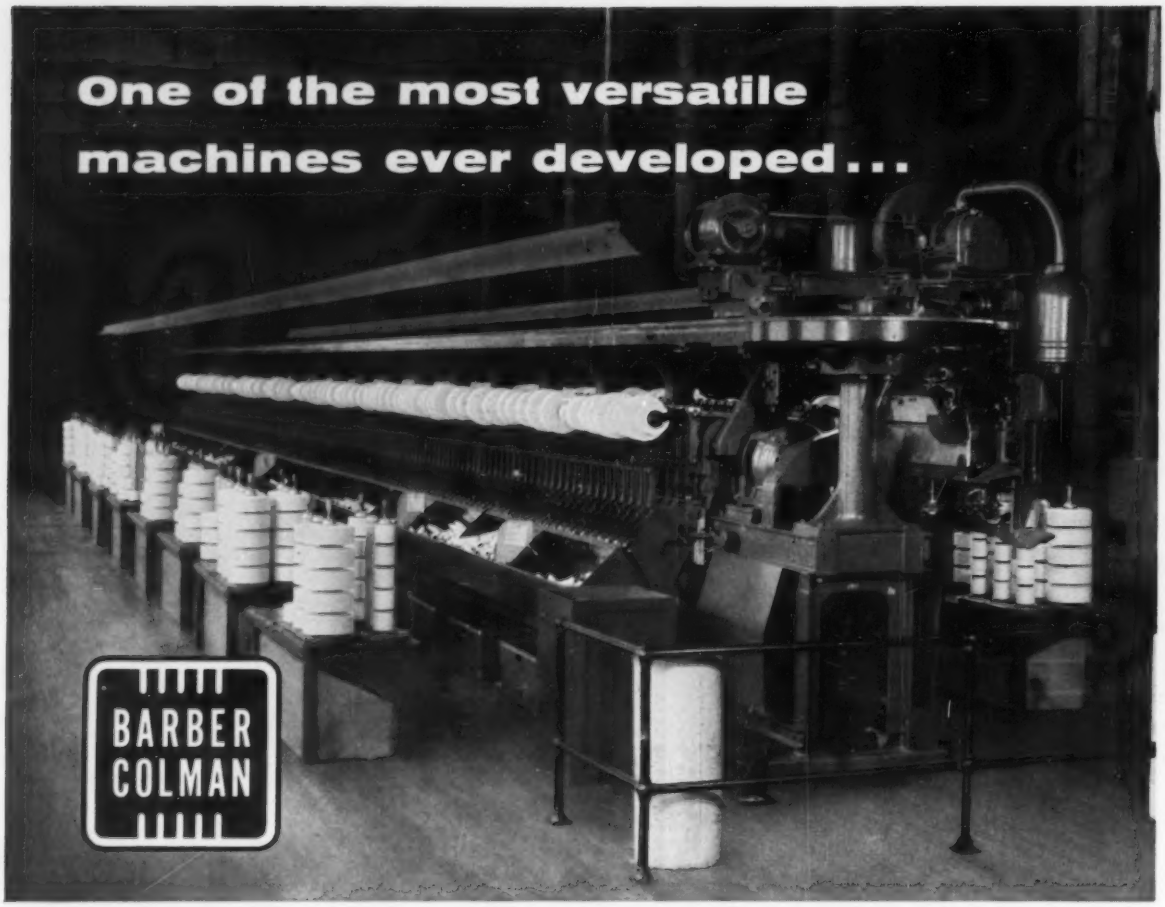
Allen-Bradley Co.
208 W. Greenfield Ave., Milwaukee 4, Wis.
In Canada: Allen-Bradley Canada Ltd., Galt, Ont.

ALLEN-BRADLEY
QUALITY
MOTOR CONTROL

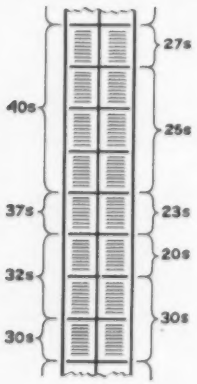


Bulletin 712 Size 2 combination starter with disconnect switch. Bulletin 713 combination starters use I.T.E. circuit breakers as a disconnect means.

One of the most versatile machines ever developed...



MULTIPLE-COUNT SPOOLER



Sale yarn mills and producers of piece goods that use various counts of different mixtures will find that this machine can be a very profitable investment. It is the famous and familiar Barber-Colman Automatic Spooler, but now you can wind . . .

A DIFFERENT COUNT EVERY 9 UNITS

The machine is built in "bays" between posts that support the traveler track, with nine bobbin-to-cheese winding units in each side of each bay. Empty bobbins, instead of being conveyed to a single sorting table, drop into separate boxes under each bay, thus enabling each group of nine units to be loaded and run with a different yarn. Starter boxes and cheese tables are set up individually for each bay. The only limitation is that the extremes of different counts on the machine at any one time must fall within the range of the knotter in the traveler. Changes can, of course, be readily made at any time, and any number of bays can be run on identical yarns. (Note the dividers between the bobbin trays on the machine shown above.) *Full details on the many adaptations of this versatile machine can be obtained from your Barber-Colman representative.*

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

BARBER-COLMAN COMPANY

ROCKFORD • ILLINOIS • U. S. A.

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Colors are truer, re-runs fewer with Morton Chemical grade '999' salt

Tests for color standards show that dyes often are less effective when you use salt of average purity. Quality control methods will show best results with high purity Morton Chemical Grade '999' Salt. It's the all sodium salt, sodium chloride and a trace of sodium sulphate, that many dye manufacturers use in testing their dyes before they are sent to you.

When you use Morton Chemical Grade '999' Salt in your operation, it complements your dyes . . . makes them more effective and helps you get softer finishes, more even shades and greater color intensity. It's easy to see why. Morton Chemical Grade '999' is more than 99.95% pure sodium chloride. It is a low cost, high purity evaporated salt free from objectionable calcium and magnesium compounds that may precipitate or react with dyes to reduce their effectiveness.

Available in 100-lb. bags or bulk, Chemical Grade '999' is recommended for use *whenever commercial calcium-free salt* is required. It's specifically recommended when direct salting is used in dyeing rawstock, package, beam, beck or jig with either sulphur, direct, or naphthol dye.

Morton offers you intermediate grades of salt, too

In addition to Chemical Grade '999' Morton produces several other grades of high-purity salt for textile use. As the only nationwide salt company, Morton can supply the kind of salt and service you require, regardless of your size, particular operation or your location.

- ☐ Please send me more information about Morton Chemical Grade '999' Salt.
- ☐ I would also like to consult with a Morton representative about the other intermediate grades of salt Morton offers the Textile Industry.

Name_____
(please print)

Title_____

Company_____

Street_____

City_____ Zone_____ State_____

MORTON SALT COMPANY

INDUSTRIAL DIVISION

Dept. TI-5, 110 N. Wacker Drive, Chicago 6, Illinois

spinning a great yarn in cost cutting SPINESSO®

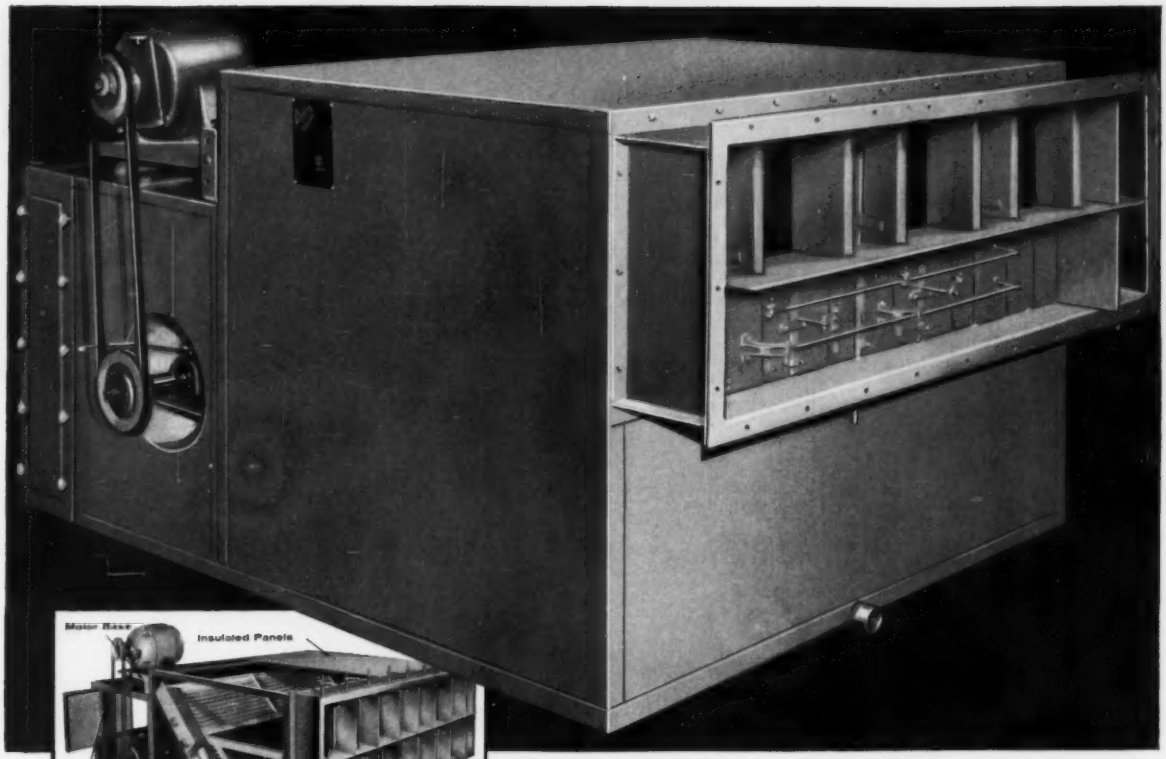
What should be lubricated—when and with what? Dramatic cost cutting stories often begin with the understanding eyes and exacting care of your maintenance man. You will get greater protection for your machinery and minimize maintenance if you provide him with Spinesso oils.

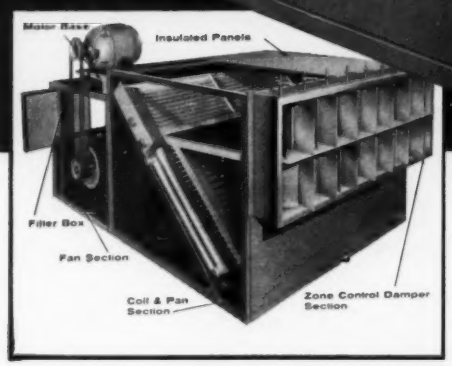
Spinesso oils are especially formulated to meet the requirements of high-speed spinning and twisting spindles, and precision textile machinery. They resist sludging due to oxidation, assure clean, gum-free operation, and provide instant lubrication during critical warm-up periods. Spinesso is available in three outstanding grades for various spindle speeds.

For information on the complete line of Esso products designed for the textile industry or for technical assistance available through a conveniently located Esso Sales Service Laboratory, contact your local Esso office, or write: Industrial Lubricants Division, Esso Standard Oil Company, 15 West 51st Street, New York 19, N.Y.

Esso

In Industry after Industry..."ESSO RESEARCH works wonders with oil"





ACCURATE TEMPERATURE CONTROL PROVIDED BY "BUFFALO" ZONE CONTROL CABINETS

"Buffalo" Zone Control Cabinets are engineered for installations where a single unit must provide varying degrees of conditioned air for several zones or rooms. These quiet operating compact units perform with peak economy, flexibility and dependability.

Temperature is controlled by mixing cooled and heated air in just the right proportions to suit each conditioned space. The need for separate re-heat coils and their controls is completely eliminated. Control for each area can be manual or entirely automatic.

"Buffalo" Zone Control Cabinets are sectionalized for maximum ease of installation. Removable panels and bearings located outside the cabinet simplify servicing. The entire unit is sturdily constructed to insure a long life of maintenance-free operation.

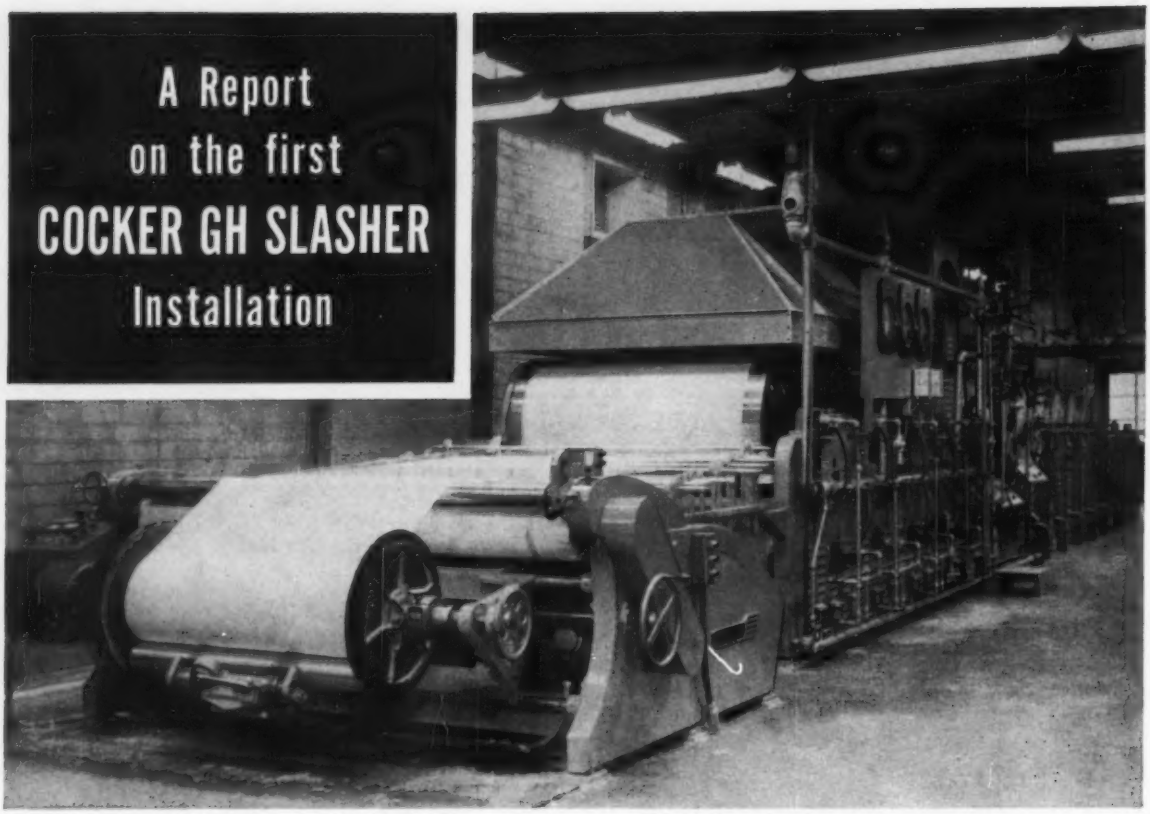
You're sure of satisfactory results when you specify "Buffalo" Zone Control Cabinets. Your "Buffalo" engineering representative will be pleased to provide you with information concerning unit selection, installation, etc. Contact him, or write us direct for Bulletin AC-220.

All "Buffalo" equipment brings you the "Q" Factor — the built-in QUALITY which provides trouble-free satisfaction and long life.

BUFFALO FORGE COMPANY
BUFFALO, NEW YORK
Buffalo Pumps Division • Buffalo, N. Y.
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

VENTILATING • AIR CLEANING • AIR TEMPERING • INDUCED DRAFT • EXHAUSTING
FORCED DRAFT • COOLING • HEATING • PRESSURE BLOWING

A Report on the first COCKER GH SLASHER Installation



A Complete Cocker GH Slasher Installation at Morgan Mills, Springfield Division, Laurinburg, N. C.

- **1540 pounds per hour** *(combed yarn)*
- **15 percent pick up**
- **40 percent penetration**

This, the first complete Cocker GH Slasher Installation, has fully proven the claims made for it at the Greenville Exhibition.

Operating with 6,400 ends 40s single combed yarns, this GH Slasher has been running at a top speed of 135 yards per minute and a production of 1540 pounds per hour . . . with 4½% moisture regain, 15% size pick up, and 40% penetration. This has resulted in a weave room efficiency of 96% and an increase in loom assignment.

The Model GH is unquestionably the World's most modern, most efficient, and most economical slasher. Write for full information today.

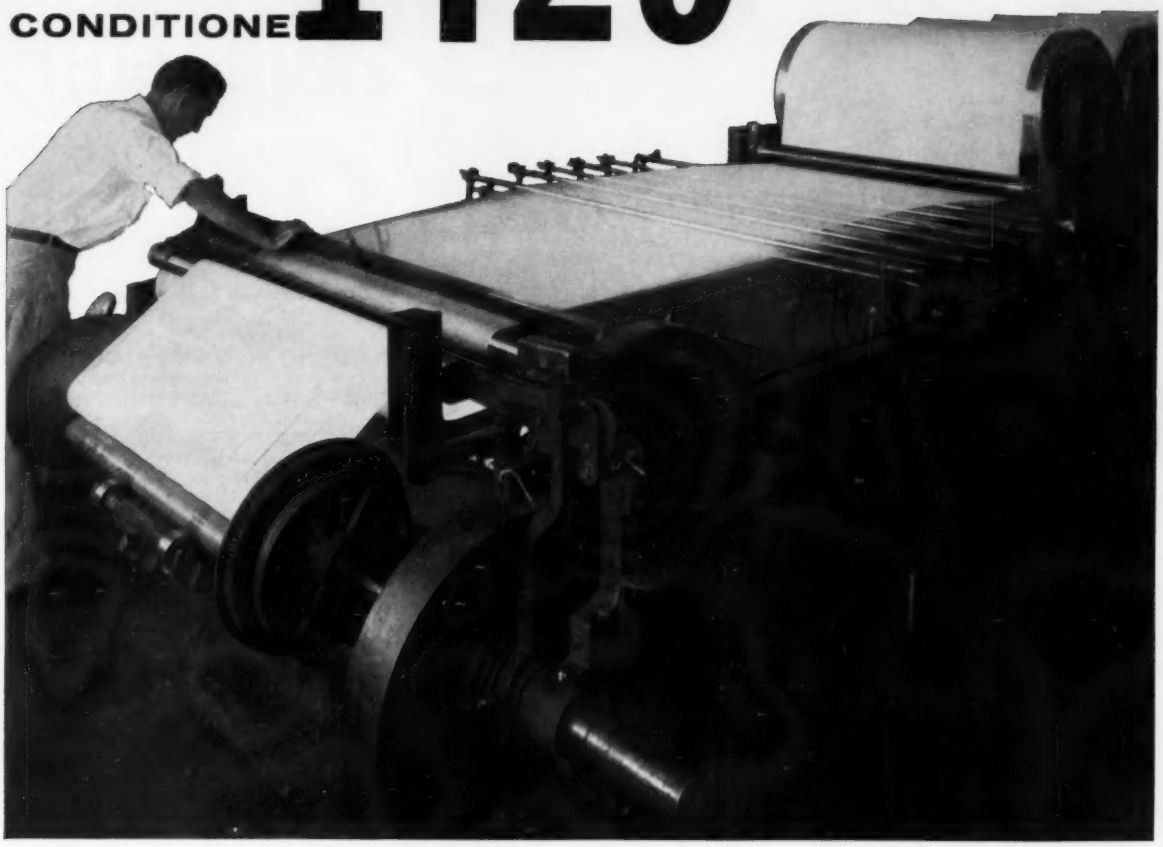
COCKER MACHINE & FOUNDRY COMPANY

IN CANADA: Contact W. S. Clark Montreal, Canada Oxford 7-2242

PLANT & OFFICES at Ranlo, N. C. MAILING ADDRESS Gastonia, N. C.

WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

HOUGHTON WARP CONDITIONER 1429



. . . for lower weaving costs!

Houghton's Warp Conditioner 1429 represents a new approach in the formulation of cotton warp size compounds. It is *lower* in over-all cost. It is a truly efficient size. And there's a third reason: Warp Conditioner 1429 is readily dispersible in water.

Dispersibility Widens Usage

This super-solubility makes Warp Conditioner 1429 applicable over an unusually broad range of the conditions found in preparing warp size solutions. Modern Warp Conditioner 1429 is a blend of anionic and non-ionic compounds, usable in any mill sizing spun yarns.

Write for latest Data Sheet, E. F. Houghton & Co., 303 W. Lehigh Ave., Phila. 33, Pa.

WARP CONDITIONER 1429

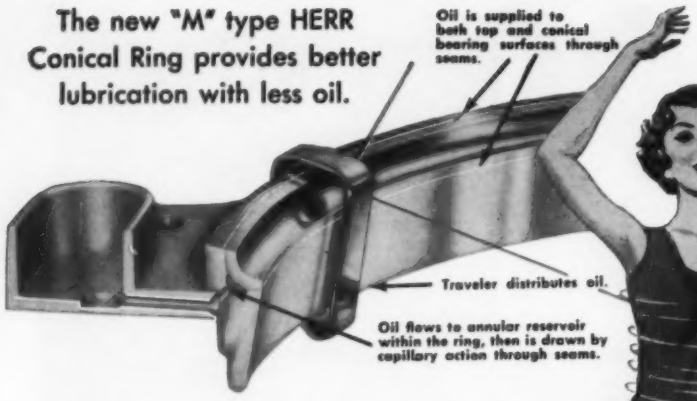
. . . a product of

E. F. HOUGHTON & CO.

Ready to give you on-the-job service

Philadelphia, Pa. • Chicago, Ill. • Carrollton, Ga. Detroit, Mich. • San Francisco, Calif. • Toronto, Canada

The new "M" type HERR Conical Ring provides better lubrication with less oil.


Oil is supplied to both top and conical bearing surfaces through seams.
Traveler distributes oil.
Oil flows to annular reservoir within the ring, then is drawn by capillary action through seams.

with HERR. New "M" type Conical Rings and Flyers

CORRECT SPINNING OR TWISTING OF ANY YARN

Four-arm long brass or aluminum base.
Four-arm short brass or aluminum base with balance bail wire.
Two-arm, light long aluminum base.
Special pollywog flyer for tire cord and heavy yarns.

For spinning and twisting of medium and heavy counts of yarns.

For spinning of medium to light counts of yarns.

In the mad rush to meet the popularity of knitted tights — the most extraordinary in years — the yarns made with Herr Conical Rings and Flyers are helping manufacturers meet high production operation with garments that have just the right stretch and fit. Tights made of HELANCA stretch yarns, produced with Herr equipment, have the curvy, stretchy, sleek look that brings the highest prices.

Herr Flyers produce light tensions at high speeds for accurate twist and yarn control.

New "M" Type Herr Conical Rings are self-lubricating with minimum oil consumption and long traveler life. Result is clean yarn, especially valuable in handling new bulk or stretch yarns.

Let HERR Engineers solve your spinning and twisting problems.

HERR®

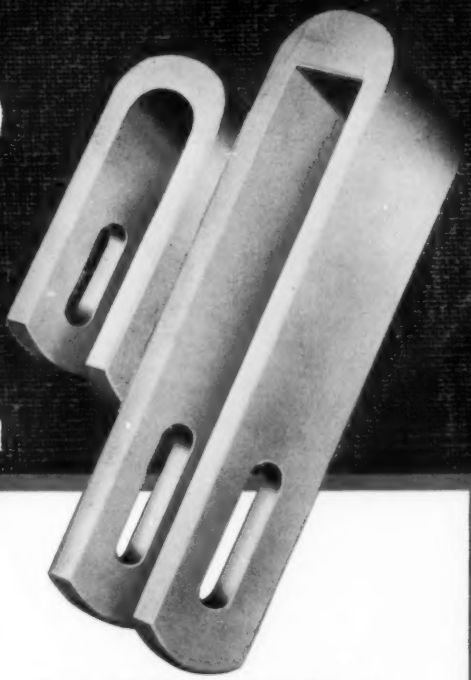
MANUFACTURING CO., INC.

310 FRANKLIN STREET, BUFFALO 2, NEW YORK

FOR SPINNING AND TWISTING WORSTED, WOOLEN, RAYON, NYLON, ORLON, FIBERGLASS AND BLENDED YARNS OF ALL TYPES

Why this lug strap lasts longer...

insures smoother operation



Because of the great strength of Tex-Hide—a product of Gates *specialized* research—the block can be molded into the strap without the use of bolts or rivets. As a result, straps are streamlined and light in weight.

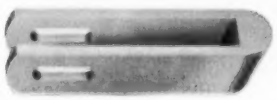
Yet, because of their superb resilience, they will give you longer service, and smoother operation, *than any other strap you have ever used.*

2 big advantages of Gates Tex-Hide Lug Straps

1. Tex-Hide Lug Straps combine great strength with unsurpassed resiliency. Therefore, they soak up blows and shocks *without taking any permanent stretch.*

2. The great resiliency also insures long life for *all parts* of the picking motion, and gives extended periods of operation *without any strap adjustments.*

Super Tex-Hide Lug Straps



Users report up to 5 times longer service on their heaviest looms from Super Tex-Hide than from any other strap.

New Thin-Tex Lug Straps

When extreme flexibility and much lighter weight are needed, Thin-Tex Lug Straps give up to 25% longer life than ordinary straps...and smooth out loom operation.

Gates Distributors are in the Yellow Pages

Gates

The Gates Rubber Company, Denver, Colorado

The Mark of *Specialized* Research

Other Products...

Take-up Roll Coverings
Card Bands
Cone and Evener Belts
Spinning Frame Drives

Tex-Hide Harness Straps

Tex-Hide and Vulco Loop Pickers

Reversible Pickers

TPA 325

Gates Lug Straps

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DYED

National® CARBANTHRENE® Vat Dyes

put the values she wants in the fabrics you sell!

As the demand for vat dyed fabrics grows, dyers insist on dyes with superior dispersibility, suited to newer application methods. Dyes like National Aniline's unexcelled Carbanthrene Dyes.

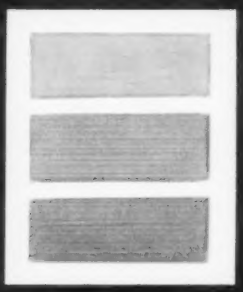
Uniform, fine-particle Carbanthrene Dyes assure clean, bright, level dyeings. Results are uniform, formulations are readily reproducible time after time.

Because of new techniques used in their manufacture, Carbanthrene Vat Dyes don't tend to agglomerate in storage or in processing. You have less waste, fewer seconds and rejects and frequently increased dye yields.

It will pay you to try Carbanthrene Vat Dyes soon. In addition to top quality dyes, you get National Aniline's experienced service and fast, dependable deliveries from nearby stocks. Call us today!

CARBANTHRENE NAVY BLUE RA DOUBLE PASTE

A new addition to the Carbanthrene range. Already gaining popularity in poplins and sateens used for rainwear. It takes a water repellent finish beautifully and stands up equally well under sunshine or showers. For additional information, write for Bulletin 448.



CARBANTHRENE YELLOW 3R PASTE

Here is a straight yellow that is unique for top light fastness as well as wash fastness. Excellent resistance to wet processing, too. Also recommended for tan and beige tones in dress goods, drapery and upholstery fabrics and carpeting. Write for Bulletin 384.

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Whatever your requirements in stock, package, as well as beam dyeing machinery, a Morton System dyeing machine is your best bet.

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COLUMBUS, GEORGIA, U. S. A.

Manufacturers of the MORTON SYSTEM Machinery for Dyeing and Bleaching of:
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. . . Economical — Easy-To-Apply . . .

SOROMINE AL softens fabrics and thread, improves sewing and napping qualities, gives finished goods a full, rich hand. The lubricity it imparts minimizes needle heating and fiber cutting. *A white amphoteric softener, with a special lubricant, in smooth paste form.*

SOROMINE AT lubricates and softens bleached, dyed, and printed textiles of animal, cellulosic, and synthetic fibers—including fabrics treated with thermoplastic or thermosetting resins. *A white amphoteric softener in creamy paste form, which does not yellow in normal use.*

SOROMINE CS softens and lubricates cotton, viscose, acetate, wool, nylon, Orlon* polyacrylic fiber, Dacron* polyester fiber, and silk in all forms, (stock, yarn, and fabrics of all types) — also useful with thermoplastic and thermosetting resins — highly resistant to yellowing — and has minimum effect on the light fastness of colors. *A white cationic softener in smooth paste form.*

Get acquainted with the SOROMINE softeners.
Samples and application data on request.

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SOROMINE, manufactured by General Aniline & Film Corp., is sold outside the United States and Canada under the trade name "Blandofen" by distributors all over the world.

Ring Twisting or Uptwisting . . . WHITIN has the Twister for you!

To provide precisely the right twister for maximum production, highest quality twisting, on the largest practical package to secure knot-free yarns, Whitin manufactures 49 models of ring and uptwisters. Whitin can supply the type and model most suitable for any twisting need for natural and synthetic fibers.

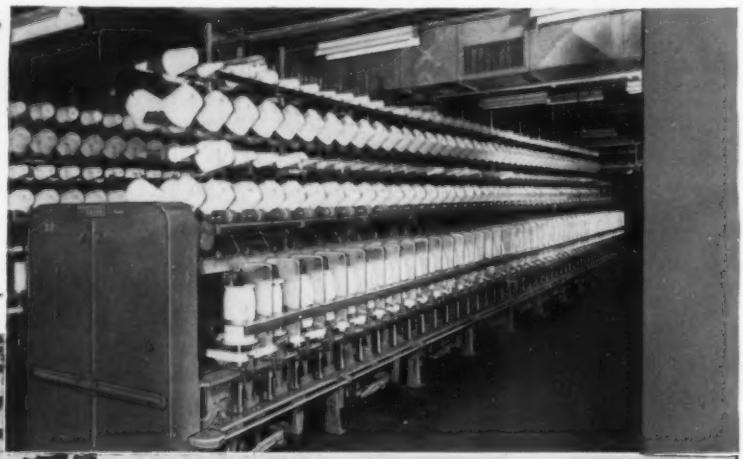
The machines illustrated here are widely used by leading mills in the production of coarse yarns for carpets and tufted rugs; they have also made outstanding records in the tire cord and paper yarn industries. All Whitin Twisters and accessory machines are advanced in design, rigid in construction and precision built.

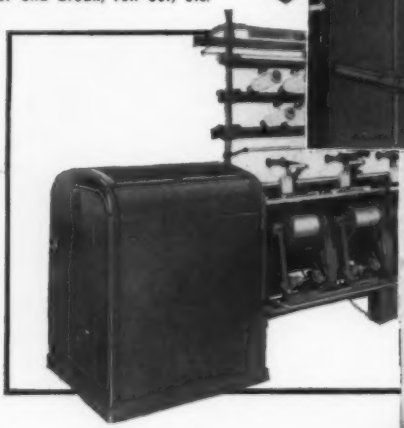
COMMODORE* RING TWISTER

For wet or dry twisting, the Commodore is available in gauges from 7" - 10", with rings ranging from 5½" - 8½" and, normally, with 92 or more spindles. Package weights are from 7.0 - 11.0 lbs. of knot-free plied yarn.

SPOOLMATIC* REDRAW DOUBLER with Electronic Slub Detectors

For winding one, two or more ends at 100 - 300 yds./min., package up to 9.0 lbs. This machine provides new scope for tufted rug or carpet yarns. Exclusive electronic slub detectors stop each winding position for end break, run out, etc.





CABLE-KING* UPTWISTER

Produces several types of take-up packages: headless, parallel-wound on paper tube; straight spool wind on double head bobbin; or cone wound on paper tube. Packages up to 9.0 lbs. and speeds up to 5250 RPM. Ideal for cabling nylon tire cord and other heavy industrial yarns.

Whitin CABLE-KING UPTWISTER is available in lengths of 60 - 120 spindles, 11" gauge.

*Trade mark

For complete information, ask your Whitin representative — or write direct to us.

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As your fresh new designs for wash-and-wears come to life, give them the superior finish and enhanced end-use performance they deserve—with Emulsifiable A-C Polyethylene!

Synthetic fibers finished with A-C Polyethylene emulsions show excellent "hand," added abrasion resistance, increased tear strength and improved sewability . . . all at a *lower finishing cost.* With Emulsifiable A-C Polyethylene in your finishes, you gain all these important advantages:

* **Better permanent wash-and-wear finishes with a wide range of excellent "hand" properties**
* **Reduced needle cutting**
* **Greater resistance to creasing**
* **Increased seam strength**

Emulsions of A-C Polyethylene are equally effective with synthetic and natural fibers, or blends. Properly formulated, they do not retain chlorine, keep whites *white,* resist scorching at elevated temperatures, and do not affect dye shades or lightfastness properties.

Make A-C Polyethylene a part of your present finishing practice! Your textile chemical specialties emulsion supplier either has an A-C Polyethylene finish or can formulate one for your specific needs. (We are manufacturers of Emulsifiable A-C Polyethylene resin, not finishing emulsions.) Investigate this superior finishing agent *now*—your fabrics deserve it! Just write or telephone today for complete information.

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features that Produce Better Quality at Lower Cost

1— Interlocking wind permits larger bobbin diameters without sloughing.

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3— Proved individual spindle pinboarding.

4— Compensating tension gives constant tension, reducing danger of stretched filling.

5— Magazine fillers can load quills in loom exactly as they come from cones, reducing possibility of bands when weaving colored yarns.

6— No piece quills.

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NEWS IN BRIEF

Nylon Study at LTI. Lowell Technological Institute Research Foundation has been awarded a two-year contract by the U. S. Army QM Research and Engineering Command for a study of the influence of dyeing and finishing processes on the properties of nylon fibers.

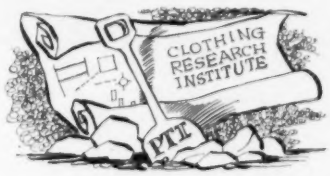
Council Adds Grey Mills. As of May 1, membership in the Corduroy Council of America has been opened to grey mills, and the Council has announced the addition of 11 new members. Membership was formerly limited to producers of finished corduroy.

Object to Fiber Names. Courtaulds (Alabama) Inc. and Hercules Powder Co. have presented statements to the Federal Trade Commission taking exception to the establishment of generic names under the new Textile Fiber Products Identification Act. Courtaulds contends that unless cross-linked cellulosic fibers and rayon are given separate generic names, consumers will inevitably confuse two very different fibers. Courtaulds suggests the name "lincron" for the new cross-linked fibers. . . . Hercules is of the opinion that the term "olefin" is too broad, because it includes in one category both polyethylene-base and polypropylene-base fibers — fibers which are substantially different in many characteristics. The company suggests two categories: "ethylene fibers" and "propylene fiber."

Cotton Not Much Cheaper. J. Craig Smith, president of Avondale Mills, and W. Gordon McCabe, vice-president of J. P. Stevens & Co., participating in a panel discussion at the recent meeting of the American Cotton Manufacturers Institute, predicted that the actual market price of 1959 cotton will range between 32 and 33 cents per pound. This will be less than the 3 to 4 cents below present level which many in the industry had expected. The mill men also estimated that large supplies of this lower priced cotton will not be available until November.

New Finishing Plant for Hong Kong. A new plant for commission finishing of cotton and rayon is expected to be in operation in Hong Kong by this summer. The plant, Jardine Dyeing & Finishing Co., Ltd., will be the Crown Colony's fourth fully integrated finishing operation, and will have an eventual capacity of four million yards per month.

PTI Offers Ground for Research Institute. Philadelphia Textile Institute has offered to provide



ground for the building of the proposed Clothing Research Institute, a project of the Philadelphia Men's Clothing Foremen.

Waste Study Available. "Cotton Processing Waste," a mill survey

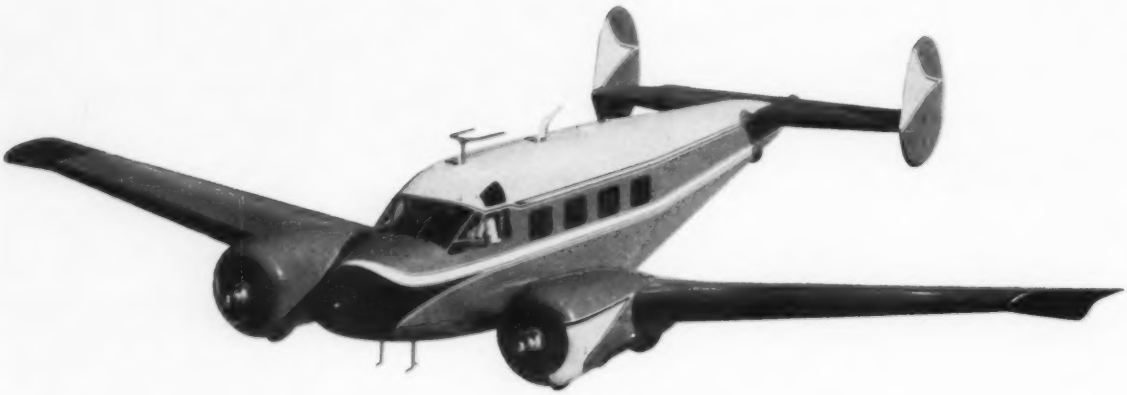
This house, now under construction outside New Canaan, Conn., was designed by architect Edward D. Stone for Celanese Corp. of America. It is intended as a showcase for all categories of home furnishings fabrics woven from the Celanese family of man-made fibers.

TRAVEL MILES

melt into . . .

PRODUCTIVE MINUTES

when executives fly . . .



in a Beechcraft SUPER 18 . . .

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BEECHCRAFT — AIRFLEET OF THE TEXTILE INDUSTRY

prepared by the National Cotton Council's utilization research division, is now available. The study gives details on waste, raw cotton characteristics, and machinery and production data for 24 fabric and 13 yarn classifications from more than 200 mills. Copies are available without charge from the Council, at 1200-18th St., N. W., Washington 6, D. C.

British View on U. S. Tariffs. Reviewing the U. S. Army's recent decision to award an American company a contract for the construction of turbines at Greer's Ferry Dam, Ark., despite a lower bid from a British firm, the *London Economist* reminds its readers that "American policy has not in fact been getting more protectionist in recent years. . . Washington tactics have been for some time to

escape to greater liberalism, while throwing off to the following wolves occasional and much-publicized sacrifices, carefully chosen to do as little real harm as possible. . . Today Americans are still buying large numbers of foreign bicycles and Swiss watches, several years after the much-publicized tariff increases which everybody said would keep these articles out."

Cotton Mill for Okinawa. Okinawa's first cotton mill—Okinawa, Boshoku Co., Ltd. — opened last month at Naha. Financing is Okinawan and Japanese, with aid from the U. S. government expected.

Labor-Management News

No New "Operation Dixie." The AFL-CIO is reported to have dropped any immediate plans for a large-scale across-the-board drive to unionize the South. Instead, expanded efforts by the Textile

Workers Union are expected. Limited funds and jurisdictional disputes are believed to have led to abandonment of any new "Operation Dixie" this year.

Dismiss Charges Against Hanes. The General Counsel of the National Labor Relations Board has upheld the decision of the director of its 11th regional office in Winston-Salem, N. C., to dismiss a number of charges of unfair labor practices brought against the P. H. Hanes Knitting Co. by the Textile Workers Union of America. The charges arose from a strike called last summer by the union in the company's spinning plant at Hanes, N. C.

New Hosiery Learner Rates. The Administrator of the Federal Wage and Hour Law has increased learner rates in the seamless hosiery industry to 85 cents an hour for the first 240 hours or 480 hours, as applicable, and to 92.5 cents for the second 480 hours. Rates in the full-fashioned branch were raised to 90 cents and 97.5 cents, respectively.

TWUA Pickets Hodges. North Carolina's Governor Luther Hodges was greeted by Textile Workers Union of America pickets when he arrived at his New York hotel recently enroute to a meeting of the National Association of Hosiery Manufacturers. The pickets protested the assignment of 140 State Troopers around the strike-bound Harriet and Henderson Cotton Mills, Henderson, N. C.

TWUA Claims Credit for Wage Hikes. To no one's surprise, Textile Workers Union of America has claimed credit for the recent round of wage increases in southern textile mills. Says *Textile Labor*, TWUA's offical publication, "Dixie's slumbering textile giants have been rudely awakened by TWUA's massive leaflet campaign, and wage increases are sweeping through southern mills. More than two million leaflets pointing out the justice and necessity of a wage increase have been distributed at better than 400 unorganized mills across eight southern states. The result: Wage increases to more than 300,000 Dixie textile workers."

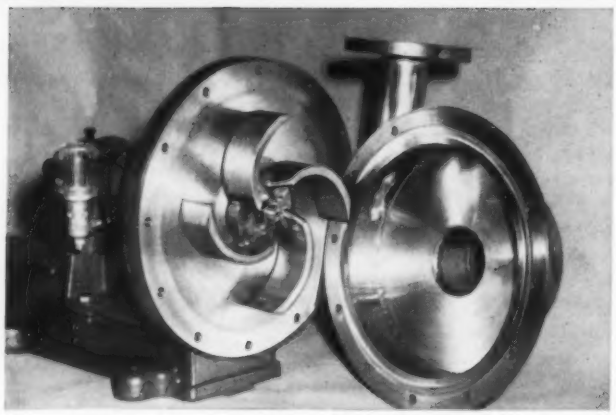
Newly Organized. Mills recently signing up with Textile Workers Union for the first time include Aristocrat Lace Corp., Norwalk, Conn.; Consolidated Screen Print Machine Co., Hicksville, N. Y.; Atrio Textile Co., Fortune Finishing & Dyeing Co., Trinit Ltd., and Continental Screen Printing Corp., all of New York City; Lehigh Spinning Co., Allentown, Pa.; and International Veiling Corp., Clifton, N. J.

How to Cope With NLRB. Bureau of National Affairs has published a completely revised and rewritten edition of "How to Take a Case Before the National Labor Relations Board," complete guide

for all those having business with NLRB. Copies of the 386-page book are available from the Bureau, at 1231-24th St., N. W., Washington 7, D. C.; price, $7.85 each.

New Contracts. A one-year contract extension with TWUA at Rock Hill (S. C.) Printing & Finishing Co. includes an 8-cent per hour pay increase; employees at North Carolina Finishing Co., Salisbury, N. C., also got an 8-cent increase, with a minimum wage of $1.25 an hour, in a two-year contract renewal with United Textile Workers Union; TWUA continues to represent employees at Stauffer-Dobbie Mfg. Co. Ltd., Galt, Ont., by winning a close election, 179-174.

Stainless Steel assures pure matched whites



TITANIUM ASSURES YEARS OF ADDED LIFE to processing equipment, such as this centrifugal pump used in severe corrosive applications. Titanium is even more corrosion-resistant than stainless steel. Generally, titanium is immune or highly resistant to oxidizing conditions. It offers outstanding resistance to pitting corrosion. Titanium is inert and non-contaminating. Titanium equipment is easy to handle. It is as strong as steel, yet weighs only 56% as much. If your processing equipment needs to be corrosion-resistant, strong, lightweight, check into Republic Titanium. Available in all commercial forms. Send coupon for facts.

HERE IS ASSURANCE OF LOW-COST STACKING of steel drums. It is Republic's new Portable Drum Rack. These steel cradles each support two loaded 55-gallon drums. Pairs of drums can be stacked to any practical height. More in-use drums can be accommodated in less floor space than ever before. Standard fork-lift trucks can pick-up, move, and stack as many tiers of drums at one time as capacity permits. Shipped knocked down, with fasteners for quick and easy assembly. Republic Drum Racks are low in cost. Send for details.

Textile equipment fabricated from Republic ENDURO® Stainless Steel assures batch after batch of pure matching whites because it stubbornly resists rust and corrosion. It is non-contaminating. It is inert to the chemical concentrations used in the continuous peroxide bleaching process. Stainless steel actually made this process possible.

Stainless steel equipment starts paying off the moment it is placed in service. It produces immediate savings in maintenance and cleaning costs. Produces long-range savings in extended equipment life. Your equipment supplier has all the facts on Republic Stainless Steel, the metal that assures batch after batch of pure matched whites.

ASSURE CONTINUOUS PRODUCTION by protecting your electrical wiring systems with Republic ELECTRUNITE® "Dekoron®-Coated" Electrical Metallic Tubing. Outlasts standard conduit ten to one in highly corrosive service conditions. A tough coating of polyethylene encases strong, lightweight E.M.T. in an end-to-end armor that is impervious to moisture and corrosive fumes. Threadless connectors and couplings wrapped with plastic electrical tape provide moisture-tight, corrosion-protected joints. Also available in hot galvanized rigid steel conduit. Send for data.

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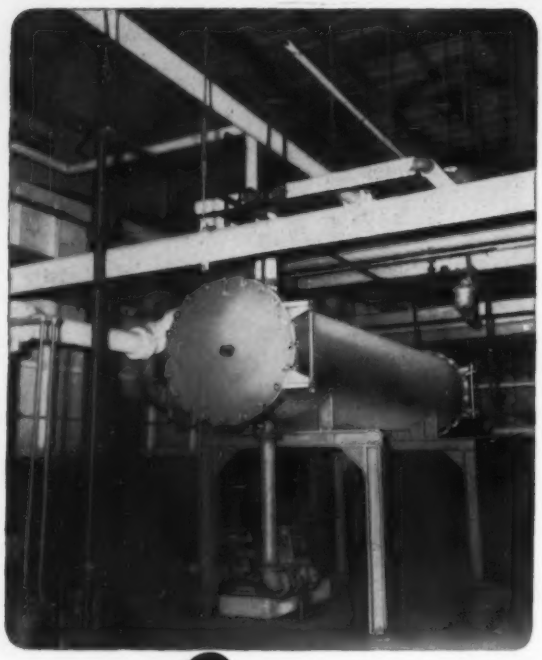
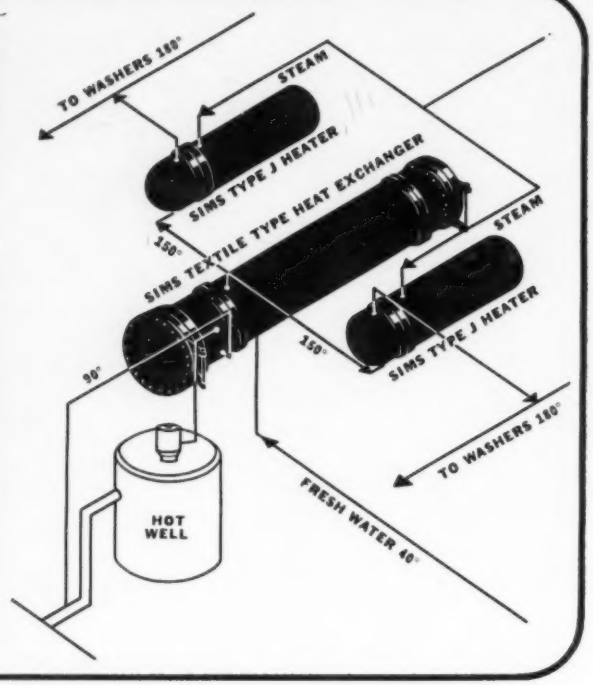




These 3 Finishing Plants Save Money with SIMS HEAT EXCHANGERS - - -

at Pepperell, Ala.

6 large Sims Textile type Heat Exchangers serve bleaching and dyeing ranges and mercerizer. Each waste water exchanger is connected to a Sims booster exchanger using steam to raise temperature of water. Typical of all, is the operation of one, on the dye range, fresh cold water introduced at 72°F. is raised to 136°F. The 6 Sims Exchangers were equivalent to an added 40,000 lbs./hr. boiler.

at Granitville, S.C.

2 very large Sims Textile type Heat Exchangers are fed from a hot waste water collecting tank. An average of 50,000 gallons per hour of incoming fresh water gains 42°. passing through the exchangers. These 2 Sims Exchangers are floor mounted and serve dyeing ranges and mercerizer to convert waste hot water into usable hot water.

at Clevedale, S.C.

One of 3 Sims Textile type Heat Exchangers serves a mercerizing department. About 250,000 gals. per day of waste water at 175 to 180°F. are passed through this exchanger. Incoming fresh water at 77°F. gained 35°F. at a flow of 172 gallons per minute. Savings on a 24 hour basis amounted to 83,062,500 B.T.U.'s. The 2 other Sims Exchangers operate on bleaching ranges.

Easy opening, swinging doors reveal the entire inside of a Sims Exchanger. Straight 1¼" tubes permit straight-thru hosing. Polished stainless steel tube plates with wide belled stainless steel or copper tubes and curved, removable baffles resist lint deposits.

It's a routine job to make sure a Sims Exchanger is bone clean. You can see it—there is nothing left to imagination—no return bends to contend with—no sealed system. Ask for Bulletin TE-3.

THE SIMS CO. **Erie, Pennsylvania**

Manufacturers of Exhaust Gas Boilers • Storage Water Heaters • Heat Exchangers • Feed Water Heaters • Steam Separators • Quenching Oil Coolers • Oil Heaters • Caustic Soda Recovery Equipment • Commercial type Instantaneous Water Heaters.

SIMS SINCE 1886

QM Tests Nylon-Paper Tents. Tents made of paper reinforced with nylon are undergoing test at the QM's research center at Natick, Mass. The material is also

being evaluated for use in parachutes, disposable uniforms, sleeping bags, and other uses.

Keeping Up With Europe. Dr. Worth Wade, director of patents for American Viscose Corp., reminds those interested in new products from European markets that the best way to keep in touch is to go to Europe. If that isn't possible, these are some steps to take: Use the services of a technically trained European representative, contact U. S. commercial labs with European subsidiaries or affiliates, subscribe to periodicals which report new European product developments, scan foreign patents and applications, and keep in touch with firms which introduce foreign developments to the U. S.

Pledges No 6th Day. Amerotron Co. recently took advertising space in the daily trade press to reaffirm "its pledge of a planned program to operate its weaving production on a maximum 5-days, 3-shift basis, 120-hour week." Says the ad, "Now, more than ever, we need restraint and merchandising

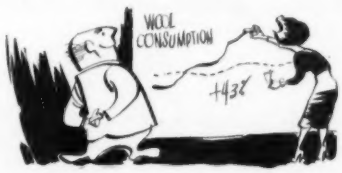
statesmanship. . . Frequently, under pressure of opportunistic planning, many mills ran some equipment 6 days while other machines remained idle. . . Today, it is crystal clear that the 6-day, 3-shift basis caused serious and oft-times distressing dislocation between production and consumption."

TWUA Hits Mergers. Solomon Barkin, research director for the Textile Workers Union of America recently filed a brief with the

House Ways and Means Committee urging that the Internal Revenue Code be tightened up to discourage textile and other corporate mergers designed to reduce Federal income taxes by taking advantage of loss carryovers.

Kenaf Agreement Signed. A long-term agreement with Haiti for the growing of kenaf fiber and the manufacture of kenaf products has been announced by North Atlantic Kenaf Corp., Havana, Cuba. Production is expected to reach about 1.5 million pounds by 1960. As part of the agreement, North Atlantic will construct a bag plant, to supply nearby sugar producing countries.

Wool Consumption Up. Consumption of apparel wool in January showed an increase of 43% over the same month of 1958,



Graniteville Co. manufactures the fabric for this work glove. The fabric is called Duro-Suede; it is cotton, usually sheeting or flannel, knife-coated with vinyl chloride resin.

the Wool Bureau reports. Total yardage of all types of wool fabrics for 1958 was reported at 273 million yards, off 6% from 1957 volume. Imports were 34 million square yards, an increase of 7% over the previous year.

TTMA Gets Commendation. Tufted Textile Manufacturers Association and its executive vice-president, Henry Ball, have received a commendation from the

City-County Planning Commission of the City of Calhoun and Gordon County, Ga., for their important part in promoting the welfare and economy of the area.

Cotton Price Support Level Announced. The U. S. Department of Agriculture has announced the levels of price support for 1959-crop upland cotton, under the alternate program recently made available: Producers who elect to use "regular" acreage allotments will be supported at 80 per cent of February 1959 parity; producers who elect to use the 40 per cent larger acreage allotments will be supported at 65 per cent of parity. This amounts to 30.40 cents per pound for the first choice, and

News about

B.F.Goodrich Chemical *raw materials*

Boost sales with better backing

The firmest foundation for customer satisfaction results from a rug backing that meets carpet construction and market needs. For example, moderate or low-priced woven carpets or rugs call for backings that possess a high degree of covering power and opacity, in addition to tuft locking or binding efficiency. You get these advantages from a combination of Geon® polyvinyl materials and Hycar® nitrile rubber latex that also lets you vary hand, covering power, degree of whiteness, and washability or dry cleanability.

For premium tufted and woven constructions, formulations based on Hycar acrylic latex give outstanding binding efficiency and yield a colorless coating that is stable under both heat and light. They provide good washability and dry cleanability, too. These characteristics make these formulations ideal where appearance of construction is a major sales consideration.

Here's another example of service you can get to produce better textiles for wider appeal, at lower costs. For information, write Dept. EA-2, B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio.

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a division of The B.F.Goodrich Company

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GEON polyvinyl materials • HYCAR American rubber and latex
GOOD-RITE chemicals and plasticizers • HARMON colors

24.70 cents for the second, based on middling 7/8-inch cotton, gross weight, at average location.

Typewriter Ribbon Output Down 1/3. Mill spokesmen report that

U. S. production of typewriter ribbon fabric is down about 35% in the last three years, due largely, they say, to low-priced imports from Japan, United Kingdom, Switzerland, and the Netherlands. The officials forecast a still greater decline if steps are not taken to control the flood of imports. They point out that scanty government statistics hamper their efforts to present their case.

Homemakers Like Imported Wool Goods. In a USDA sample survey of 600 homemakers in York, Pa., the consensus was that clothing made from fabrics of domestic wool was less costly than imported, but that the imports

were desirable for durability, warmth, and hand. But — only about one-third of the women interviewed had ever worn clothes made from imported woolens or worsteds.

Merchandising Notes

Allied Chemical has opened a full-scale promotion for carpets of textured Caprolan, Allied's new filament nylon. The promotion got under way with full-page ads in April issues of *Reader's Digest* and *Time*.

American Carpet Institute has published the 1959 version of its four-page newspaper supplement, designed for use by local carpet dealers in launching local "Carpet Time—1959" promotions. The section contains 34 articles and 24 pictures giving the latest news and information about carpets, and is intended to be run as a section in local newspapers, tied in with local retail advertising.

American Viscose Corp. has announced a new family of fabrics using Avisco XL high-strength rayon. Included are cotton warp, XL-filled lawns; broadcloths; poplins; corduroys; fine-woven challis; and suitings. "Avron" is Avisco's trademark for fabrics containing XL fiber. * * * The company has announced that the trademark "Super L" will now apply to finished carpets only, and that use of the Avisco Integrity Tag will be confined to either 100% Super L construction or blends with wool, nylon, or the acrylics.

Joseph Bancroft & Sons Co. reports that several tricot mills are producing Ban-Lon fabrics of textured filament yarns. Present end uses include underwear, blouses, dresses, and sleepwear. * * * Bancroft's new wash-and-wear finish, based on fiber modification rather than resin finishing (the same approach as Deering Milliken's Belfast) has been given the trademark "Bancare."

Collapsible Tube Manufacturers Council reports development of a textile repair kit that does away with needle and thread. A white, latex-like waterproof adhesive dispensed from a 1½-oz squeeze tube is used to repair holes and tears. It can also be used for attaching applique and sequins, covering buckles, and so on, and is launderable and drycleanable (except with carbon tetrachloride).

Columbian Rope Co. has developed a new combination nylon-flax rope, claimed to overcome the drawbacks of all-synthetic line while making use of the strength and durability of nylon. The rope is said to stay wet and run cool even when used with power winches.

Corduroy Council of America has adopted a seal, which will identify goods from its participating members. The seal carries the Council imprint, and the statement, "Made in America to the Most Exact Quality Standards."

Denim Council has arranged a tie-up with Metro Goldwyn Mayer Pictures to promote and exploit the film, "The Mating Game," in which Debbie Reynolds wears blue jeans as her only costume.

Downs Carpet Co. has instituted a program for mothproofing all its wool lines. The program will be called "Moth-A-Way."

Du Pont Co. has joined R. H. Macy, New York department store, in a three-week, store-wide promotion, highlighting the contribution of man-made fibers and other products of chemistry to modern living. The program starts May 18.

James Lees & Sons Co. conducted an intensive promotion of twist carpets during April; included in the promotion were full-page color ads in 290 newspapers, plus ads in several of the largest consumer magazines.

National Cotton Council reports that a study of national consumer magazine ads showed that expenditures for space devoted to cotton products amounted to $23,806,104 last year—down slightly from the $24 million-plus figure of 1957.

Newport Finishing Corp. is applying a new bacteriostatic finish, "Resi Pure," to the linings which it supplies to the clothing trade.

J. P. Stevens & Co., Inc., will market bed sheets with the Belfast wash-and-wear finish, starting this spring. Other licensees of the process, developed by Deering Milliken Research Corp., include Cannon Mills, Cone Mills, Cranston Print Works, Southern Bleachery and Print Works, and Bradford Dyeing Association.

TEXTILE EXECUTIVES!

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Kemp Radiant-Flame Compression Singeing equipment can speed up your operation from 75% to 100%... drastically reduce costs for labor, maintenance, and fuel . . . and still turn out a *better product!*

Kemp singeing is a high-speed operation, ideal for modern fabrics. Material travels over burners in a split second; is brushed by a solid mass of flame for a closer, more even singe. The unique Kemp *pre-mix* concept . . . the mixing of oxygen and fuel gas *before* ignition . . . eliminates excess oxygen in the combustion chamber formed by the burner head and rapidly traveling material. Thus, the nap is not burned, but *carbonized* and carried away by escaping combustion gases. The resulting singe is cleaner, faster, and cheaper.

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KEMP OF BALTIMORE

RECENT TECHNICAL AND COMMERCIAL DEVELOPMENTS

by J. B. Goldberg
Consultant to the Textile and Allied Industries

Exclusive

FIBERS AND YARNS

New Cellulosics. In France, details were released of a new class of cellulosics featuring a high degree of polymerization, wet tenacity of over two grams per denier, low wet swelling, high wet modulus, and dimensional stability. This material, "Z-54," was developed by the French Compagnie Industrille des Textiles Artificiels et Synthetiques, Fabelta of Belgium, and Viscose Suisse, in association with the Japanese Tachikawa Laboratories. Characteristics appear to be similar to those of the recently announced Fiber 40 of American Viscose Corp., SM-27 of Courtaulds (Alabama) Inc., and American Enka's Fiber 500.

Crimping and Bulking Patents. Recent patents issued in the U. S. A. cover means for producing crimped thermoplastic filaments (Firestone Tire & Rubber Co.), for bulking yarn (Du Pont Co.), and for curling yarn by passing it over a sharp edge and heating (Turbo Machine Co.).

Carbide to Produce New Fiber. Union Carbide Corp. will shortly begin production of a new acrylic fiber, now called Fiber T, a company official revealed in testimony recently before the Federal Trade Commission. The new fiber will contain 65 to 75% acrylonitrile.

Spun-Dyed Polyester. In England, Imperial Chemical Industries is introducing spun-dyed black Terylene staple.

MACHINERY AND PROCESSES

Improved Dacron Felts. A patented process for manufacturing nonwoven Dacron felts is claimed to overcome such difficulties as punch holes, control heat shrinkage operations, and permit the use of less costly fibers in blends with Dacron.

False-Twist Machine. Whitin Machine Works are planning to market the French Ateliers Roannais de Constructions Textiles false-twist machine [see TEXTILE INDUSTRIES for Dec., 1958, p. 89] in the U. S., Canada, and Mexico. Users will be licensed by Deering Milliken Research Corp.

Metallic Clothing With Fabric Foundation. Development of a metallic card clothing with a fabric foundation similar to that of conventional clothing has been announced by the Swedish firm AB Kardbeslag.

FABRICS AND FINISHES

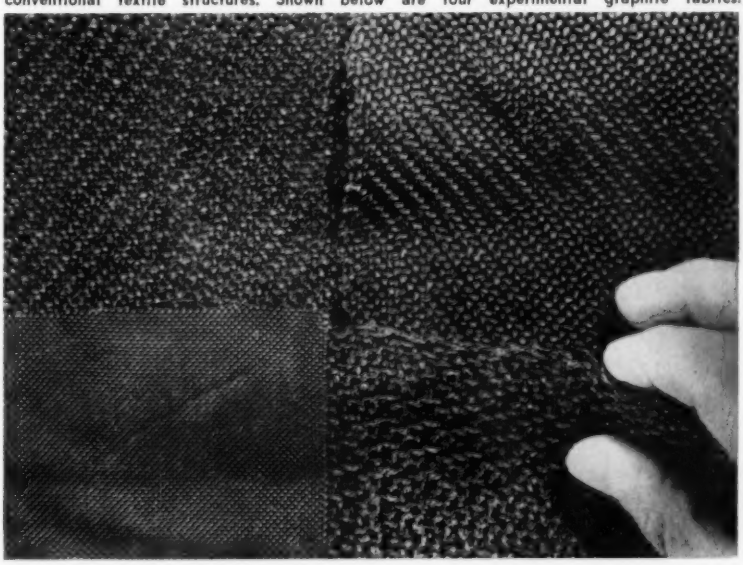
Foam-Fabric Laminates. A Canadian firm is producing a fabric suitable for interlining, bed quilting, and rug underlays, composed of 80-square flannelettes, 2.85 drills, and sateens, laminated to polyurethane foam.

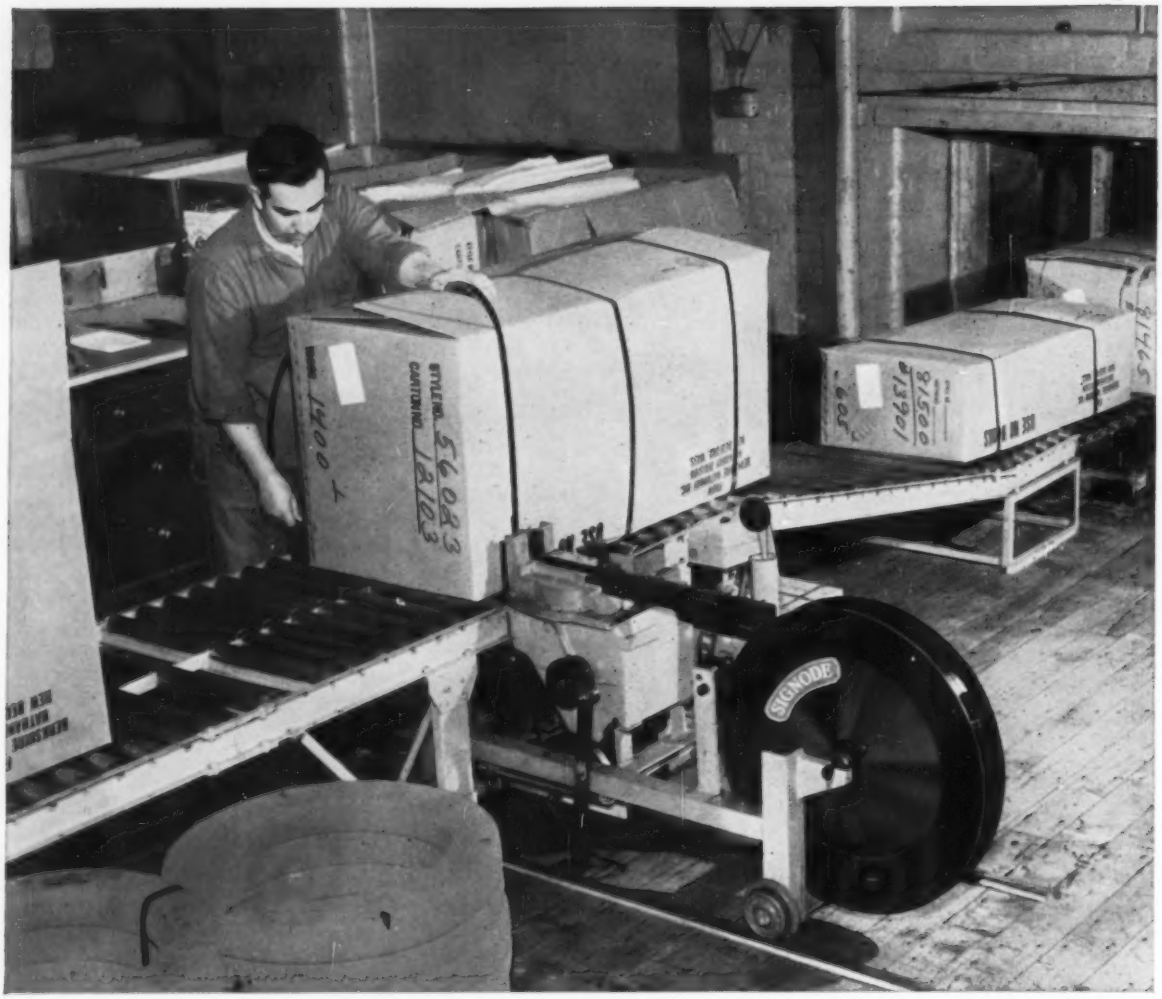
Warp-Knit Hosiery. In England, warp-knit stockings of monofilament nylon are said to meet fashion requirements while providing longer wear life than conventional hosiery. The Liba-Tibiale warp knitting machine is being used to produce these fabrics.

Rapid Wool Dyeing. The Wool Textile Laboratories of the Australian Scientific & Industrial Research Organization have developed a new method for dyeing wool by treatment with a cold solution of dyestuff in an organic solvent. Dyeing time is said to be reduced to a matter of minutes, but problems of solvent recovery call for continuing study.

Durable Creasing of Wool. The durable creasing of wool trousers by the "Si-Ro-Set" process is just beginning to enter commercial production in this country, although it has been in use in Australia for several years.

National Carbon Co. is reported to be producing on a semicommercial scale flexible fibers and fabrics of almost pure graphite. The process involves first carbonizing the natural or synthetic material, then converting it to graphite at a temperature of 5400 F, produced electrically. It is said that any form of textile material—yarn, or woven, knitted, or felted fabric—can be converted to the graphite form, in the same range of textures available in conventional textile structures. Shown below are four experimental graphite fabrics.





Signode PSM saves 8 man-hours per day

The Signode Power Strapping Machine applies each strap around these textile cartons in seconds...with right tension every time. The operator needs only seconds more to re-position the carton and feed the next strap.

Savings in time come to eight man-hours per day—equivalent to many times the Signode lease cost.

The Signode man can show you how strapping can save you money in many ways...with denser bales that save space and freight...with ways to eliminate wasted strap ends by using continuous feed. He can show you how to dress up your bales and cartons with seals that bear your trademark...show you new Signode machines, including air and electric power strapping tools and power strap feeders.

Make your product cost less to handle, store, ship, and receive. Call the Signode man near you, or write:

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EXECUTIVE VIEWS

Prepared by a man who is closely identified with the textile industry.

The uncommon overseer

IN THE textile industry, responsibilities of department heads can vary widely from one mill to another. In general, however, mills expect a standard of performance with regard to production and quality which, together with analysis of costs, serve as a yardstick for measuring a department's efficiency.

But figures do not necessarily reflect a department head's competence, whether a department is operating in the black or not—management ability and sound management policies are called for as well.

Among plant executives there is perhaps general agreement that an overseer who "knows what he is doing" invariably possesses a developed ability to handle people, and sufficient experience to get his department "out of a jam." And in appraising overseers, it is often held that a knowledge of people takes precedence over a knowledge of things. Presumably this is so because a problem involving only tangible factors must in the long run have a solution, but a problem involving people is more complex and does not readily yield to scientific study.

Where operations are technical, as in dyeing, the overseer is of necessity a specialist; without technical knowledge he cannot hope to get the confidence of people under him. Thus, technical know-how in processing must certainly rank alongside experience in human relationships.

WHAT SHOULD be expected of an overseer in terms of contributions to his department and to the plant? The statement, "I'm only as good as the men under me" is often repeated by plant superintendents and managers. While it carries much truth, it can also have many implications: that the executive had little or no part in training or hiring his overseers; that he cannot possibly attend to all details of department administration, and is thus absolved of certain responsibilities; or that he expects more than is normally required of an overseer—that he expects counsel from below.

To be specific, should an overseer be expected to outline the processing route for a new fabric through his department? Should he outline the basic specifications for a piece of processing equipment that is to be purchased for his department? Or should he be concerned only with normal routines required to run his department, taking little interest in decisions at a higher level which nevertheless affect departmental efficiency?

Certainly, overseers should be able to contribute much of practical value if they are encouraged to do so. It is at this point that the unusually capable overseer is separated from the mediocre one.

WHEN an overseer continually contributes to the success of operations, his stock will inevitably rise. In fact, over the years he might even build himself a small empire, which at first glance may appear detrimental to plant harmony. Yet the simple fact remains that such a man is more knowledgeable in his particular phase of plant operations than any other individual in the plant, and thus commands a higher stature.

While such a man may have a tendency to question decisions from above, it must be remembered that complete agreement between people is not always possible, nor for that matter essential.

Thus, the potential value of an overseer might not be recognized and consequently means cannot be taken to further develop his experience and abilities. Management should not be led to believe that a soundly-planned, modern operation can be entrusted to an inexperienced overseer. For an operation must be precisely understood at the department-head level if it is not to prove troublesome, despite the fact that a quality control program may be in effect.

An overseer therefore must know down to the last detail what an operation is to accomplish, and must be able to examine its product in that light. In analyzing a fabric defect, for example, an overseer must decide whether it is a chance occurrence, caused by

New Fundamental Chemical Discovery Creates A

BETTER SIZE FOR SYNTHETICS

New noncongealing Mira-Film Acetate Gum—developed especially for synthetics—gives noticeably superior adhesion. Forms clear, tough, flexible film that reduces warp stops, shedding, fuzz balls. As much as 2% better weaving efficiency demonstrated in actual mill tests!

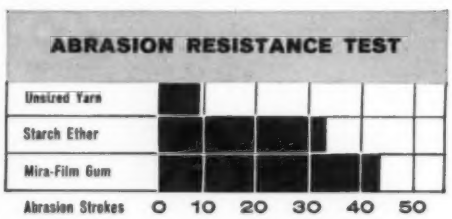
Now, after over two years of intensive research, the A. E. Staley Mfg. Co. announces a new concept in the sizing of acetate, viscose, and other man-made fibers—through the use of Mira-Film Acetate Gum. Made by an exclusive process, so unique that a basic process patent has been applied for, Mira-Film is available in a *complete* range of viscosities.*

Mira-Film is particularly outstanding in applications with spun synthetics and their blends. For example, its chemical affinity for acetate yarns results in noticeably superior adhesion. And Mira-Film forms a tough, flexible film with increased abrasion resistance. Mill tests on a 90/10 Viscose/Acetate blend produced a 1% to 2% improvement in weaving efficiency.

More effective protection greatly improves weaving efficiency. Reduces breakage, shedding, fuzz balls and matting on drop wires . . . virtually eliminates thin spots. Cuts costly down-time.

Staley's exclusive development sets a new high, too, in uniformity . . . permits a degree of process control heretofore unattainable. Thus, Mira-Film Gum has minimum variation in viscosity or other physical properties, from bag to bag or from carload to carload.

Why not get all the facts about new Mira-Film Gum? For further information, see your Staley Textile Representative at the branch office nearest you or write today to: A. E. Staley Mfg. Co., Decatur, Ill.



*Mira-Film is one of a series of new products with a broad spectrum of characteristics, made possible by this new Staley development.

Compare The New Mira-Film Gum With Your Present Starch Size!

1. Completely noncongealing
2. Lower pasting temperature
3. Can be used at lower size box temperatures (120° F)
4. Paste is long and stringy
5. Faster cooking—only 30 minutes required at normal concentration
6. Requires wax additive only
7. Can be made in a full range of viscosities

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simple human failure perhaps, or whether it is of major consequence, caused by an underlying situation that is just beginning to reveal itself.

AN OVERSEER must be prepared to meet new problems. A wool finisher must decide with certainty how much longer to extend the fulling operation, even though it has already passed beyond the usual required fulling time for that particular fabric. And a bleacher, as another example, should know if a fabric leaving his department has received the proper amount of treatment.

There are variables in yarn manufacturing and weaving, not to mention raw material variations, which can give rise to new problems and throw the inexperienced overseer off the track. The experienced man moves quickly to find the source of the problem confronting him, and carefully studies the possible solutions before putting them into effect.

The best overseers readily admit that they never cease to learn the finer points of their jobs, either in handling people or in the practical aspects of processing. This thirst for knowledge and experience is accompanied by keen powers of observation and concentration which lead to higher achievements and excellence.

ON THE WHOLE, plant managements do not actively seek to develop overseers of such high caliber. It would make life in the plant easier for all concerned, but it is recognized that this goal is unattainable and for that matter not essential. Besides, personal development of such high degree must come in large part from within the individual. What really matters to a plant is departmental efficiency.

Nevertheless, it is within management's domain to create the proper atmosphere which, although it cannot produce outstanding overseers in unlimited numbers, can definitely improve departmental efficiency, and afford other benefits both tangible and intangible.

Readers will be interested in the article beginning on page 79 of

(Continued on page 226)

FUTURE EVENTS

DATE		EVENT	LOCATION
May	2	Alabama Textile Operating Executives slashing and weaving discussion	Thach Auditorium Auburn, Ala.
	2	Mid-West Section AATCC	Schroeder Hotel Milwaukee, Wis.
	4-8	Knitting Arts Exhibition	The Auditorium Atlantic City, N. J.
	4-5	Hosiery Industry Conference and National Association of Hosiery Manufacturers annual convention	Claridge Hotel Atlantic City, N. J.
	5	Underwear Institute annual meeting	Hotel Traymore Atlantic City, N. J.
	6	National Knitted Outerwear Association reception and cocktail party	Hotel Shelburne Atlantic City, N. J.
	8	Metropolitan Section AATCC	Kohler's Swiss Chalet Rochelle Park, N. J.
	12-15	Textile Institute annual conference	Scarborough, England
	12-14	Cotton Research Clinic	Grove Park Inn Asheville, N. C.
	13-16	Tufted Textile Manufacturers Assn. annual convention	Hollywood Beach Hotel Hollywood Beach, Fla.
	14	National Association of Wool Manufacturers annual meeting	Waldorf-Astoria Hotel New York City
	14-16	Carolina Yarn Association annual outing	The Carolina Pinehurst, N. C.
	15	Western New England Section AATCC (ladies' night)	Rapp's Paradise Inn Ansonia, Conn.
	20-22	Cotton Buyers of the South	Dinkler-Plaza Atlanta, Ga.
	22	Delaware Valley Section AATCC annual outing	Philmont Country Club Huntingdon Valley, Pa.
	22	Hudson-Mohawk Section AATCC (ladies' night)	Schuyler Meadow Country Club Albany, N. Y.
	25-27	American Society for Quality Control annual convention	Public Hall Cleveland, O.
	28-30	South Carolina Textile Manufacturers Association annual convention	The Cloister Sea Island, Ga.
June	5-7	Piedmont Section AATCC outing	Grove Park Inn Asheville, N. C.
	12	Rhode Island Section AATCC annual outing	Metacomet Country Club East Providence, R. I.
	12-13	Mid-West Section AATCC outing	Brown Lake Resort Burlington, Wis.
	12-14	Southeastern Section AATCC summer outing	Radium Springs, Ga.
	18-20	Southern Textile Association annual convention	Ocean Forest Hotel Myrtle Beach, S. C.
	26-27	South Central Section AATCC outing	Riverside Hotel Gatlinburg, Tenn.
Sept.	10-11	Fiber Society, Inc	Princeton, N. J.
	10-21	3rd International Textile Exposition	Samples Fair Grounds Milan, Italy
	17-18	Chattanooga Yarn Association outing	The Read House Chattanooga, Tenn.
	28-29	American Gas Association Textile Processing Symposium	Sedgefield Inn Greensboro, N. C.
Oct.	1-2	Textile Quality Control Association	Grove Park Inn Asheville, N. C.
	3	Textile Operating Executives of Georgia slashing and weaving discussion	Georgia Tech Atlanta, Ga.
	7	Chemical Finishing Conference	Statler-Hilton Washington, D. C.
	8-9	North Carolina Textile Manufacturers Association convention	Carolina Hotel Pinehurst, N. C.
	8-10	AATCC National Convention	Sheraton Park and Shoreham Hotels Washington, D. C.
	17	Textile Education Foundation, Inc.	Georgia Tech Atlanta, Ga.

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Combed, carded or filament sales yarn; carpet yarn; paper; tire cord (ply or cable) . . . the same basic twister, with minor alterations, can be used to handle any or all of these. Bobbins build from 8 to 13 inches. Gauge and ring size as you require, from the smallest to the largest.

Meadows-equipped mills turn out yarn of superior quality because of smoother running and fewer ends down, and report many other substantial economies.

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Meadows Twisters run at much higher speeds with less horsepower and maintenance. Ball bearings in all gear end studs, roll stands, individual drive pulleys, tension pulleys. Lifter rod bushings replaced with anti-friction rollers. Even the builder motion is anti-friction. Sturdy steel construction in frame, base rails, roller beams, ring rails, head and foot ends, doors.

BRING YOUR TWISTING PROBLEMS TO US

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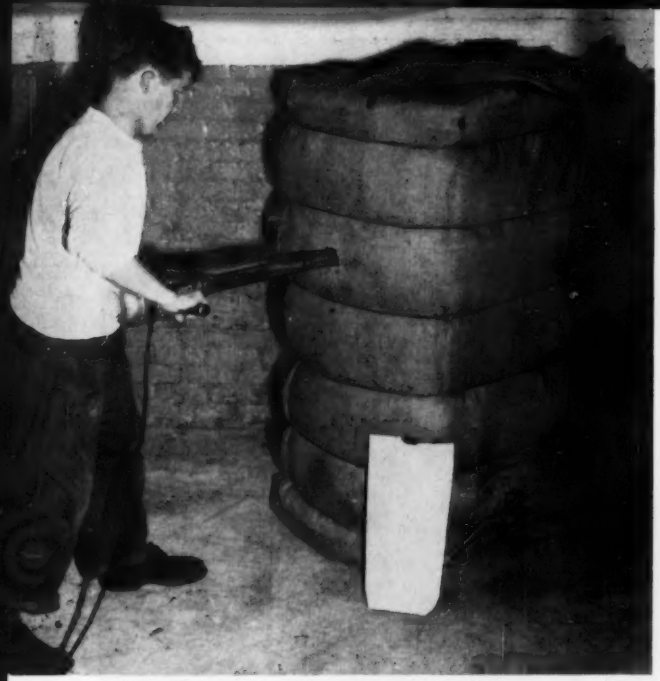
Textile Industries
FOR MAY 1959



About 100 grams of dyed wool or synthetic fiber are removed from bale in taking core test sample, giving representative cross section of the bale. The bag on the floor is provided for the sample.

Core test assures uniform stock dyeing

Staff prepared Exclusive

FRED Whitaker Co., Raleigh, N. C., cores bales of dyed wool and synthetic fiber and runs the samples through a small metallic card, which simulates normal processing. The carded sample gives a cross section of the bale suitable for determining uniformity of dyeing and matching of shade.

The company has followed this procedure for a number of years and has found the effort well worth-while. Some mills take 1% of the stock off the top of the bale for sampling purposes but this doesn't give an adequate cross section to satisfactorily indicate levelness of dyeing for raw-stock wool and synthetics.

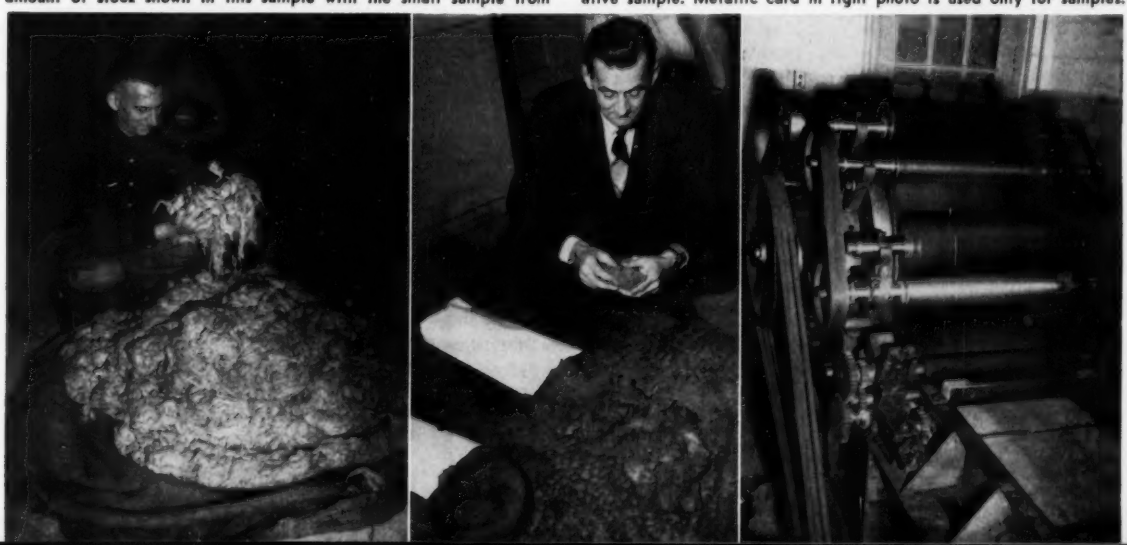
The core test takes about 100 grams of stock. This makes a smaller sample than does the surface procedure, and it also gives a more representative cross section of the stock throughout the bale. The cross section provides an excellent sample for accurately determining color characteristics.

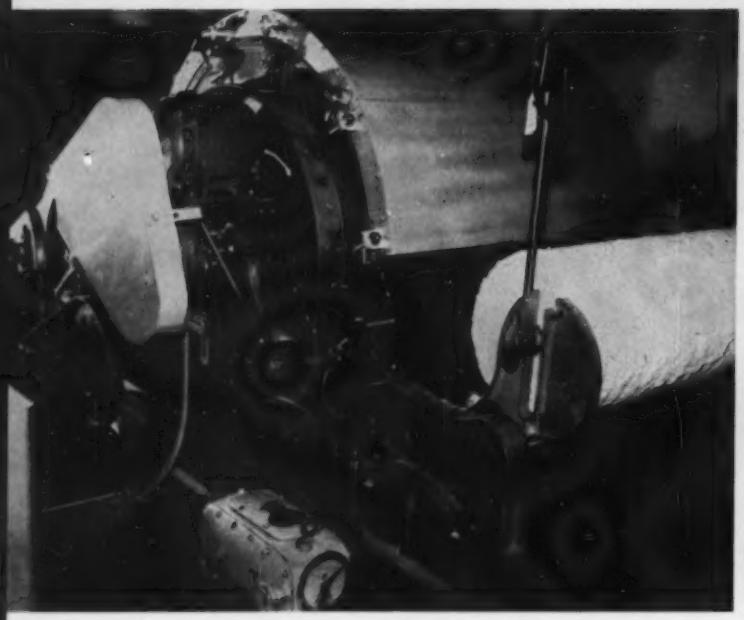
The standard procedure, followed at the Fred Whitaker Co. with good results, avoids excessively large poundage in one sample. Starting with a 50,000-pound lot for dyeing, first the formula is developed in the laboratory to produce the desired shade. Then, approximately 5% of the order is dyed, dried, and baled.

The bale press operator then cores* each of these bales and

*Coring is done with a ¾-inch heavy duty portable electric drill, equipped with the necessary coring attachments. Complete details of the method were given in TEXTILE INDUSTRIES for January, 1950.

Photo at left shows sample taken from bale by old method. Compare amount of stock shown in this sample with the small sample from core test, middle photo. Old method also does not give representative sample. Metallic card in right photo is used only for samples.





Flatless card cuts waste 50%

■ WASTE extracted from cotton at the card is reduced by more than half (without affecting yarn quality) when the flats are replaced with a relatively simple and inexpensive attachment that weighs only 200 pounds and has no moving parts, the U. S. Department of Agriculture announces.

Cards modified with the new device, which was developed by engineers of USDA's Agricultural Research Service, are termed granular cards, the word "granular" describing the surface of the attachment that comes in contact with the cotton during the carding process.

In pilot scale tests at the Southern Regional Research Laboratory in New Orleans, involving six types of cotton from three growing areas and varying in staple length from 31/32 to 1 7/16 inches, waste from the granular card averaged 2.63 per cent of the cotton carded. Waste from the standard flats-type card averaged 5.81 per cent. Quality and uniformity of the cotton carded by the two pieces of equipment were comparable.

Limited mill scale tests initiated in August 1958 with 1-1/6 inch staple length Strict Middling grade cotton resulted in an average waste reduction of 4 per cent—a greater saving than was achieved with similar cotton in the pilot plant investigations. The mill scale tests also showed that the number of neps was slightly reduced, and that yarn quality was maintained by the granular as compared with the conventional card. More extensive mill evaluations are in progress.

With the attachment in place, the card is completely sealed, as shown in an accompanying illustration. Thus, a major source of dust is eliminated. Upkeep is low, since only one part is subject to wear.

A public service patent has been allowed and is available for licensing.

The granular card resulted from a two-year study of air currents in carding machines. These studies demonstrated that carding in present-day machines is essentially a mechanical action. However, the air currents in the card, properly directed, can be made to assist in separating the cotton tufts into their individual fibers. The granular card combines the effect of air currents and a specially prepared inner surface next to the carding cylinder to carry out efficient operation.

Investigation of air currents within carding machines also led to development of a new type of cover for the licker-in. Although the cover is not necessary to operation of the granular card, it materially reduces air currents and fiber loss.

Core test

(from page 77)

sends them to the laboratory for carding and matching to the standard. If the results achieved on the first lot indicate that no improvement can be effected in the dye formula or process, then approximately 70% of the total order is dyed.

If for any reason it is necessary to make a change in the first formula, the preceding operation is repeated. This method enables the dye house to obtain better matches without the usual re-dyeing.

Sometimes the customer requires a sample before the last 20% of the stock is dyed; however, if results are left entirely in the hands of the dyer, the dye formula is altered as necessary to achieve the desired results and the remainder of the lot is finished.

This same procedure is used on any of the newer synthetic fibers, in fact on any material which is dyed in the raw stock dye machine.

Manual charts supervisor's course

Supervisors and management shared equally in preparing American Thread Co.'s new Supervisors' Manuals

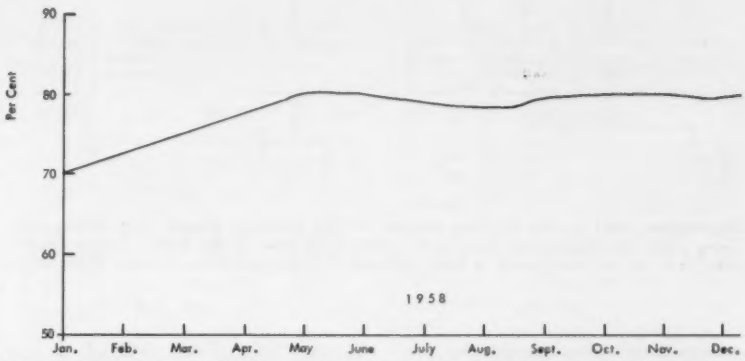
Staff prepared Exclusive

FOR A number of years, management of The American Thread Co.'s Willimantic, Conn., mills had been aware of a growing problem which centered about supervisory functions and responsibilities. Not the least important aspect of this problem was that a disproportionate amount of supervisory time was being spent on immediate problems. Thus, such important functions as preventive maintenance and production scheduling, essential to departmental efficiency, were being in part neglected.

Although the problem extended into each of the plant's six divisions, it did not, however, extend into every department. Nor for that matter had it become so serious as to require immediate remedial action. In some departments, the operations were of a routine nature, requiring perhaps less supervisory attention; and in others there were competent supervisors who could not only meet day-to-day problems but could plan in advance as well.

But in part the problem stemmed from the fact that in recent years a substantial number of supervisors had simultaneously reached the age of retirement. These positions, and other vacancies which can be expected to occur in a plant employing 1900, were being filled by men who required some indoctrination in their new responsibilities.

From an over-all standpoint, too, the role of the supervisor had been gradually changing in recent years. Increased competition had reduced profit margins, and changing market conditions had forced many companies to diversify. The American Thread Co.'s Willimantic mills today produce threads for industrial, household, and apparel trades, utilizing conventional, textured, and stretch yarns of their own manufacture. Thus, the impact of such changes created the need in many departments at Willimantic for more exacting supervision and improved employee relationships in order to maintain production levels and control waste.



This example of rise in efficiency of one department is typical of what happened at Willimantic mills of The American Thread Co. within three months after Supervisors' Manuals went into usage. Substantial reductions in waste were also effected on plant-wide scale.

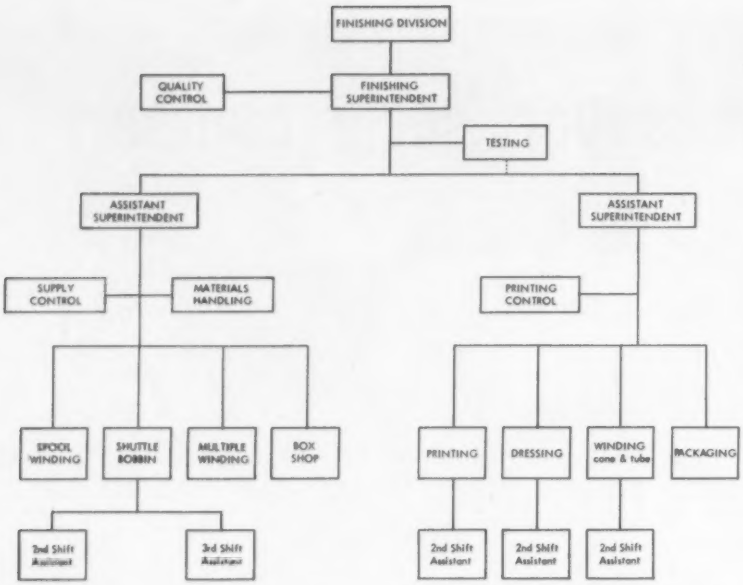
"Someone Else Wasn't *Doing It"*

In sum, management's observations revealed that in many departments a real danger existed that important functions were being neglected, either because of insufficient supervisory time or because of the mistaken assumption that "someone else was doing it."

Clearly, the problem called for thorough study to provide supervisors with an authoritative guide in which specific responsibilities, relationships, and functions within the organization would be defined. Such a manual, as it was subsequently to be called, would also make available standards for self-measurements, as well as for a valid appraisal by one's supervisor. In addition, the manual would provide a standard of required functions, in order to attain results in human relations, operating efficiency, and quality, to assure a stable operation and yield the most effective results.

This vast undertaking began to take on the form of a well-organized program in the fall of 1957 after many preliminary discussions. Perhaps the unique aspect of the program, which had much to do with its success, was that executives and supervisors alike participated in preparing the Supervisors' Manuals.

The program was started with the shuttle bobbin department of the finishing division serving as the "guinea pig." It required about 1½ years before its benefits, in terms of increased efficiency and reduced waste, were observed and



Organization chart of the finishing division of The American Thread Co.'s Willimantic, Conn., mills. The Supervisors' Manuals were first tried here, in the shuttle bobbin department; their use has now spread to every department in the five other divisions of the mills.

management pronounced the program as being successful. During this time the Supervisors' Manuals were prepared and rewritten as required until they became reliable guides for supervisors and assistants.

Overseers' Duties

As a preface to the Supervisory Manuals there is a listing of the over-all duties and responsibilities of department overseers. These are:

1. The overseer is responsible and accountable to his immediate supervisor for the proper interpretation and carrying out of his specific duties and responsibilities.

2. The overseer is authorized to take any reasonable action which is deemed necessary to fulfill his responsibilities in the administering of company policies, or as defined in the manual, or that are assigned to him by his immediate supervisor.

3. The overseer shall assign any part of his over-all duties or functions to his subordinates when doing so will enable him better to fulfill his responsibilities.

4. He shall delegate sufficient authority to his subordinates to carry out these duties and functions.

5. The assigning and delegation of any part of his over-all duties and functions will not release him from full responsibility and accountability for the results.

Areas of Responsibility

The department overseer's major functions and responsibilities fall into six broad classifications. These, as they appear in the Manual, are listed as follows:

I. EMPLOYEE RELATIONS

a. Plan personnel requirements for departmental needs; assign and train personnel to fulfill these needs.
b. Indoctrinate all new employees.
c. Handle all complaints and grievances in a just and fair manner.
d. Discipline employees through the use of prescribed warning and discharge procedures.
e. Maintain adequate records and reports on departmental personnel.

II. PRODUCTION PLANNING AND CONTROL

a. Plan and schedule production, special projects, and other work; see that such work is carried out effectively.
b. Insure availability of supplies and materials.
c. Coordinate processing to meet production schedules and service standards.
d. Work with other organizational units to insure a coordinated plan and approach.
e. Maintain adequate records and reports on departmental production, supplies, etc.

III. MAINTENANCE

a. Maintain all machinery and equipment in good repair.
b. Recommend adequate oiling and cleaning schedules for machinery and equipment, and see that all established schedules are carried out.
c. Suggest modifications or improvements on machinery or equipment which will improve the operation.
d. Maintain an adequate supply of replacement parts for machines and equipment.
e. Control purchases of parts and repairs within the departmental repair budget.

IV. COST CONTROL

a. Assign direct and indirect labor within prescribed standards.
b. Control allowances and overtime.
c. Determine causes for variances from standard, and take immediate action to correct them.
d. Report and correct any deviations from standard procedure.
e. Suggest changes in methods or procedures which will result in decreased costs.
f. Maintain adequate records and reports for departmental cost control.

V. QUALITY CONTROL

a. Maintain product quality to meet standard specifications.
b. Control waste within standards, and maintain prescribed records and graphs.
c. Recommend adequate testing and inspection procedures to meet quality standards, and see that established procedures are carried out.
d. Suggest changes in methods and procedures which will result in improved quality

and reduced waste.

e. Maintain adequate records and reports for departmental quality control.

VI. SAFETY, HEALTH, AND GOOD HOUSEKEEPING

a. Promote orderliness, cleanliness, and good housekeeping practices.

b. Supply and maintain adequate guards around dangerous machinery and warnings against departmental hazards.

c. Recommend adequate fire fighting equipment and see that all fire prevention rules and regulations are carried out.

d. See that all safety policies and procedures are carried out.

e. Maintain the best possible departmental working conditions to insure the health and well being of the employees.

Specific Duties

For the guidance of each department, specific duties and responsibilities to be carried out on daily, weekly, and monthly schedules are listed. These duties and responsibilities fall under the six broad classifications outlined above, and if properly carried out assure each department overseer that every measure has been taken to promote a smoothly running and efficient department. Actually, management sought to give each department head full authority to "run his own show," and supplied him with the necessary tools to do so.

In practice it was found that each overseer had sufficient time to carry out his assigned duties and responsibilities, and had ample time besides for making longer range plans of vital importance in reducing unexpected crises.

The specific duties and responsibilities of the department overseer in the shuttle bobbin department are listed below. They reveal the thoroughness which went into their preparation; the goal was to suit the department, its size, and its processes.

DAILY

Make routine patrols of the department several times a day, checking all phases of the operation. Take any necessary corrective actions immediately.

Indoctrinate all new employees in the manner described in this manual under "Check points for indoctrination and follow up of new employees."

Administer the handling of grievances and disciplinary actions in a just and fair manner and in line with the warning and discharge procedures outlined in this manual.

Initiate all requisitions for personnel, equipment, supplies, materials, repairs, etc.

Initiate status notices in the manner described in this manual under "Purpose and procedures for new status notice."

Check with all key personnel to insure that all processing and procedures are carried out as specified. (Be sure that they are well informed of any deviations in processing methods and procedures.)

Recommend to your immediate supervisor schedules covering running time, adequate lubrication, adequate cleaning, adequate overhauling, general operating procedures, suggested technical and mechanical changes, etc.

Check humidity charts to see that humidity is controlled as specified.

Initiate requests for piece rates and changes in specifications or rates in the manner described in this manual.

Check performance report on nonstandard items.

WEEKLY

Check and approve all department payrolls, records, inventories, reports, etc.

See that stock inventory is taken for the production control department on Wednesday.

Spot check quality of all types of tubes.

Check and initial the 60/40 draw-off sheets.

Check performance report on standard items.

BI-MONTHLY

Check waste variance report and see that it is posted on graphs.

MONTHLY

Check third shift during its operation.

Check all cost variance reports, repair budget reports, waste reports, etc.

Take Cargotainer inventory as specified.

Check scales for accuracy.

Check to insure proper monthly coding of bobbins as well as packer's identification.

In the shuttle bobbin department there are about twelve processes for which specific duties and responsibilities are listed in the Supervisors' Manual. Those listed below are for the guidance of the department overseer as they apply to the wax winding process.

DAILY

Inspect over-all housekeeping of section and cleanliness of machinery.

Inspect mechanical operation of equipment (especially the operation of the waxing devices) and the quality of supply packages and product.

Check the order control board to see that all orders are processed as scheduled.

Check machine downtime to see that it is not excessive, and approve for payroll purposes.

WEEKLY

Inspect over-all condition of machinery for wear, defective parts, and effectiveness of cleaning and lubricating schedules.

Check individual operators' production to insure that they are all operating at standard or better.

Check waste on operation to keep it under control.

Assistant Overseers

Since the shuttle bobbin department operates on a three-shift basis, requiring department assistant overseers, their basic responsibili-

ties and specific duties have also been spelled out. (Again, only the wax winding department will be used as an example.)

The Supervisor's Manual points out that the assistant overseer is responsible and accountable to his immediate supervisor for the proper interpretation and carrying out of his specific duties and responsibilities. He is authorized to take any reasonable action which is deemed necessary to fulfill his responsibilities in the administering of company policies, or as defined in the manual, or that are assigned to him by his immediate supervisor.

The assistant overseer's basic responsibilities include the following:

1. Supervising and coordinating all operations on his shift.
2. Keeping his immediate supervisor informed of progress, deficiencies, irregularities, or other significant factors affecting assigned responsibilities, operating results, and personnel effectiveness.
3. Administration of company policies, rules, and regulations on his shift.
4. Operation of his shift within the standards set.
5. Assist in carrying out all waste, cost reduction, and quality improvement programs, and maintain a high level of morale on his shift.
6. To check on effectiveness of all shift personnel in carrying out their prescribed duties, and to inform his immediate supervisor of those employees who cannot or will not carry out their duties satisfactorily.
7. Inform other shift supervisors of any instructions or information which is necessary for continued stable and efficient operation.

The duties and responsibilities of the assistant overseers are much the same as those of the overseers. Here are some daily actions the assistant overseer of the wax winding department is instructed to take:

Check the yarn carrier and weigher and see that he is assigning orders and carrying out his duties as prescribed.

Check the machine operators and see that they are paying proper attention to the operation of the waxing devices as well as to performing their duties as prescribed.

Check the machinery that is down for cleaning and repairs and see that the fixers are performing their duties as prescribed.

Check individual machine operators for excessive waste.

Employee Not Overlooked

Although most processes at Willimantic, as in the textile industry in general, require unskilled or semi-skilled workmanship, departmental efficiency depends to a large extent on how well employees do their jobs from day to day. Thus, in preparing the Supervisors' Manuals much emphasis was placed on the employee's early period of employment, in order to get him properly started for his own well being as well as for the company's interests.

The Manuals contain a section titled, "Check Points for Indoctrination and Follow-Up of New Employees," which is quoted below:

1. PRE-EMPLOYMENT INTERVIEW
   - A. Put the applicant at ease; a friendly, courteous manner will aid considerably.
   - B. Sell yourself; make the new applicant feel that you are a supervisor who will consider impartially but sympathetically whatever problem he may wish to discuss.
   - C. Permit no interruption of interview except for emergency; interruption only tends to make the applicant more nervous and creates an unfavorable first impression.
   - D. Gain the information about the applicant that you feel to be important to your operation. It is a lot easier on the applicant and less costly to disqualify now rather than after two or three weeks on the job.
   - E. *Show* and *explain* to the applicant the full job he is being considered for and answer all questions he may ask; don't omit any disagreeable features.
   - F. Explain the starting rate of pay, the top rate for the job, and how fast he can expect to attain the top rate. Any dissatisfaction with pay should come out now and not after three or four weeks on the job.
   - G. Return applicant to Personnel Department—if acceptable, with a definite feeling of not only being needed, but *wanted;* if not acceptable, for further referral by Personnel.

II. APPLICANT REPORTS FOR WORK
   - A. Do not keep him waiting; waiting can result only in a feeling of insecurity, of not being especially needed or wanted.
   - B. Acquaint him with his surroundings; show him where to hang his clothes and where the nearest toilet facilities are located. Introduce him to those with whom he will be working.
   - C. Start him on his new job; tell him *why* his part in the process is important to a good product.
   - D. Follow up. Check back with him frequently during the first day to make sure all questions are answered. Check back with him periodically during the next weeks as to progress, job satisfaction, etc. A follow-up sheet will be forwarded to you from the Personnel Department ten days before the probationary period is up as a reminder to re-check this new employee.

Conduct and Safety Rules

To protect the rights of the company and the rights of other employees, and to maintain efficient operating conditions to the mutual benefit of both the company and the employees, a set of company rules have been posted as the expected standard of conduct for all employees.

If any prohibited actions, as set forth in the Supervisors' Manuals, are committed by an employee,

disciplinary measures are taken, either in the form of an immediate suspension-discharge, or in the form of a written warning, depending upon the seriousness of the act.

Similarly, an employee who flagrantly and repeatedly violates safety rules is subject to disciplinary action, which is again at the discretion of the supervisor and depends on the seriousness of the violation.

These safety rules are merely rules of common sense which should govern the actions of all employees as they perform their normal duties. Their purpose is three-fold: (1) To protect the health and well-being of the employees, (2) To minimize the cost to the company for its liability under the Workmen's Compensation Act, and (3) To make the company definitely a desirable place to work.

Benefits for All

It is not to be construed that the Supervisor's Manual can be placed in the hands of an unqualified individual, and produce miraculous results in departmental efficiency. For as every experienced overseer knows, running a department can't be reduced to a listing of duties and responsibilities regardless of how well they are prepared. Sound judgment, based on a working knowledge of the departmental processes and on experience in handling people, is essential to successful supervision.

The American Thread Co. management recognizes the importance of individual competence at the department-head level, and toward this end have adopted a strong policy of selecting for assistant overseer positions individuals who can eventually assume higher rank and its responsibilities.

The Supervisors' Manuals, however, offer many advantages to overseers and supervisory personnel, and is of much benefit to employees and the company alike.

As the manuals went into use, the employee became aware of the fact that management regarded him as part of the organization. For management sought to give him the most competent supervision, furnished him with the tools and supplies he needed to make his job easier, and thus enabled him to attain maximum earnings.

The Supervisor's Manual gave the overseer a measuring stick for appraising himself and those under him; and dispelled doubts he might have had as to what management expected of him, and how well he was running his department. By spelling out his functions and responsibilities, management placed him in full charge of his department. And he now found that he had ample time to plan production schedules in advance, to give consideration to preventive maintenance, etc.—the important factors which make for a smoother running departtment.

In time, overseers found a closer cooperation with other departments, which promoted efficiency on a plant-wide scale.

From management's viewpoint, there were tangible results as well. There were notable improvements in efficiency not long after the Supervisors' Manuals went into effect, with a reduction in operating costs and waste, and a lower employee turnover.

The Supervisors' Manuals are kept up-to-date as processes change, or as better ways are found of doing the many small functions which make up a department's routine.

Perhaps the most important factor in the success of the Supervisors' Manuals is that everyone—management and supervisors—had an equal part in preparing them. Thus, the manuals have behind them years of practical supervisory experience, together with the latest management techniques.

Progress report on wash-wear woolens

■ RESEARCH progress in the development of chemical treatments that impart minimum-care properties to wool fabrics is reported by U .S. Department of Agriculture scientists.

Woolen slacks, skirts, and socks treated with a modified epoxy resin —the best of many chemicals tested— have stood up well under severe practical testing, according to Dr. Harold P. Lundgren, who directs wool and mohair research for USDA's Agricultural Research Service at Albany, Calif.

Experimentally-treated wool flannel slacks showed no shrinkage after extreme laundering, and only light touch-up pressing was needed to restore original appearance.

Woolen skirts held their pleats through machine washing, requiring only light pressing to restore their original appearance. Treated woolen socks outwore untreated, and went through 35 launderings without shrinkage.

The small amount of resin required to shrinkproof the garments affects only slightly the drape, resiliency, and the way wool feels to the touch. Creases and pleats can be returned to the garments with touch-up pressing. However, with present techniques, the heavier resin treatments required to give durable creases and pleats—to provide truly "wash-and-wear" qualities—causes noticeable impairment of these natural wool qualities.

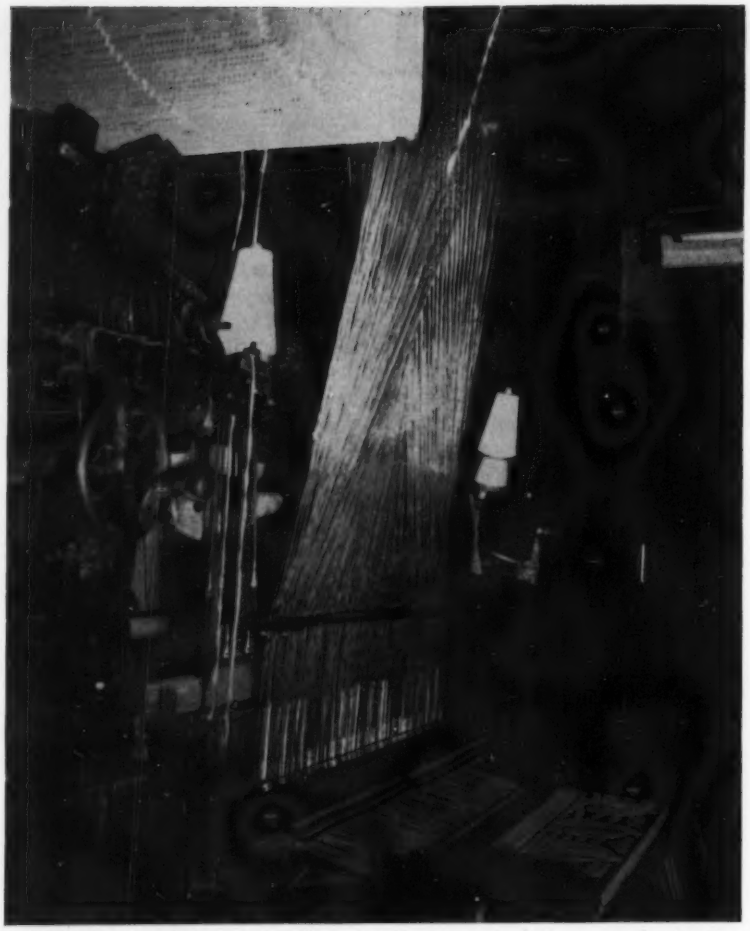
"Currently, the quest is for minimum care wool," Dr. Lundgren says, "and we believe we can ultimately work out an acceptable process and adapt the process to commercial standards."

Note how much the untreated left trouser leg shrunk after several machine washings, compared with the resin-treated right leg.

How to make fancy terry

by T. Hargreaves
Exclusive

*Part 2**



A 624-hook Jacquard shown here and on opposite page is producing a complex, two-tone reversible terry pattern. Jacquard harness passes through long comber board above the lay.

Points to consider in selecting equipment for producing two-tone reversibles, sculptured effects, etc.

THE 104-HOOK Jacquard used in terry fabric weaving is usually confined to weaving names of hotels, hospitals, etc. If it is desired to weave over-all Jacquard effects in terry, either in two tone reversibles or in sculptured designs of blocks of terry, then we shall have to use a Jacquard with a much larger hook capacity. A very convenient size is one of 624 hooks.

*The first portion of this three-part article appeared in the April issue, pages 150-152.

Some mills use a 1248-hook Jacquard that is really two 624-hook machines built into one frame. The loom over which such a Jacquard is mounted may be equipped with under-cam motions or a dobby as explained in Part I. In every respect there is no change in the loom, whether we intend to weave names down the middle or fancy designs in terry all over the towel.

Large Comber Board Needed. The change is in the larger capacity Jacquard and in the size of the comber board. The comber board now to be used must be the length of the available weaving reed space of the loom. Although the 624-hook Jacquard has 12 hooks in the short row and 52 rows lengthwise, we will use a comber board that is 6 rows deep, not 12.

We must remember that on a cam loom all the ground warp will be carried in two heddles; on four heddles if a dobby is used. Also, we shall not have more than 32 pile ends per inch of reed space, possibly as few as 24.

So, a comber board 6 rows deep and 5½ rows per inch across the width of the loom will be sufficient to take care of the maximum density of pile ends per inch. There are many types of comber boards that may be used.

One type found very useful and long lasting is made of reed wires spaced 5½ dents per inch and soldered in the ribs which are two inches apart. Five wires are soldered in rows across the face of these reed wires, to divide the face into six equal spaces. These six spaces are the six rows deep of the comber board. This comber board

The triple-lift, single-cylinder Jacquard unit is coordinated with dobby motion through the chain drive which operates the three lifts, the rods of which are visible to right and above sprocket. Fixed number of hooks makes selection of tie-up method important.

is held in a position slightly higher than the top of the ground heddles and a little in front of them.

During weaving, the Jacquard harness should not be rubbed by the lay nor by the ground harness frame at any time. Both the comber board and the ground heddles should be positioned to ensure free movement of the Jacquard harness.

Select the Harness Tie. The next question to be solved is the type of harness tie that is most suitable for the qualities of terry cloth we may be called upon to weave. A straight tie all across is the most convenient and lends itself to all manners and styles of figured terry designs.

It has one drawback. Such a tie limits the width of towel that can be woven. We have 624 hooks in a straight tie.

If we decide on a style demanding 32 pile ends per inch of reed, then 624 divided by 32 equals 19.5 inches in the reed, which will give us a loom-state woven width of 18½ inches, including the selvages. For convenience:

30 pile ends / inch = 20.80" in reed
28 pile ends / inch = 22.285" in reed
26 pile ends / inch = 24.00" in reed
25 pile ends / inch = 24.96" in reed
24 pile ends / inch = 26.00" in reed

The normal size terry towel is usually of 22″ finished width, with width varying from 20″ to 24″, and being in some cases as wide as 27″.

We must bear in mind that most terry towels are either washed or bleached after weaving. This will shrink the towel at least two inches in width. Therefore, if we are producing a Jacquard terry towel with washed or bleached finish, we must weave it 24 inches wide (loom state) to obtain a towel 22 inches wide in the finished state. This demands that we must have at least 25½ inches of reed space.

If we are using a straight tie with a 624-hook Jacquard, we cannot use a reed finer than 25 dents per inch and attain our desired width in reed, for 624 dents (one per hook) plus 16 dents for selvage equals 640 dents. This number divided by 25 equals 25.6″ reed width, and this reed width will give us a loom state woven towel width of 24 inches and a washed finish width of 22 inches. If we decide that such will be our tie-up plan, then we will be forced to use high picks per inch to produce the better qualities of terry towels. *(Continued next page)*

Many high quality Jacquard terry towels are woven with 32 pile ends per inch in the reed. To weave a towel 24 inches wide loom state, we would need about 800 pile ends.

We have only 624 hooks in the Jacquard so we cannot use a straight tie. We cannot assume that all terry designs will turn over at the center, and as a consequence we cannot use a center tie.

Through analyses of the types of Jacquard designs usually associated with terry towels, we find that if we can reserve 360 hooks for a straight tie for the center, and use the remaining 264 hooks (or any portion of them) in a cross-over tie to the sides, then we can control up to 888 pile ends. This number is satisfactory for most towels, and we shall adopt this method as our standard tie for our Jacquard harness.

Select the Jacquard. Having resolved the number of hooks and the system of harness tie to suit our requirements, we are still faced with the problem of selecting the mechanical arrangement of the Jacquard best suited to our requirements. As choices we have the single-lift, single-cylinder, one-card-per-pick model; the double-lift, double-cylinder, one-card-per-pick with alternating cylinders; and the specially constructed single-cylinder, one-card-per-three-picks model. While studying the 104-hook type, we decided to adopt the specially constructed Jacquard for terry towel weaving—it is so convenient for the weaver and pattern designer and only uses one-third the number of pattern cards. This holds true for the 624-hook type which we now propose to use.

Usually a Jacquard design terry towel has sufficient eye appeal for sale purposes, and thus it is not necessary to weave fancy borders that call for weaves other than terry structure. By omitting these fancy weave effects in the borders, this specially constructed terry Jacquard is sufficient, simple, and ideal for our purpose.

There are, however, certain types of terry towels woven by Jacquards, usually with a nonpattern terry body, that have very fancy end borders. These end borders use special-weave effects such as double plain with stitchers, alternating two picks plain with two picks floating filling weave, and many other variations. Terry towels woven with such borders cannot be woven on the specially constructed terry Jacquard. This type of towel needs special consideration for arranging the system of harness tie to be used, and also the mechanical details of the Jacquard best adaptable to weaving such patterns.

A type of Jacquard that could be economically used for terry weaving, and one that would use very few cards, would be a double-lift machine with the cylinders arranged to work in "cross-border" action. There would be two cylinders, one of which would carry one repeat of the pattern in the body of the terry towel. The other would carry the pattern cards for one repeat of the border pattern.

One cylinder would be in action and presenting the cards on every pick until the desired number of pattern repeats had been woven for the body pattern. The other cylinder then comes into action to weave the pattern for the border.

Such a method doubles the speed of cylinder movement, and it is similar in movement to a single cylinder machine in that only one cylinder is in use and not working on alternate picks as is the usual double cylinder Jacquard. A special mechanism is used to change the cylinders in or out of action much in the same manner as is adopted for double cylinder dobbies.

(Continued next month)

How to adjust a winder bracket to prevent stitches

Extract*

■ STITCHES on the ends of a cone usually result from a maladjustment, an accumulation of lint, or a worn part. When stitches, or "cobwebs" as they are sometimes called, occur, the winding machine should be inspected to see (1) if the cone holder is set incorrectly, (2) if lint has accumulated between tension discs, (3) if a builder pin is worn, or (4) if the supply bracket is improperly located.

Adjusting the Supply Bracket. On "Roto-Coner" winders a screw attaches the supply bracket in one of two holes in the tension bracket bar. For parallel tubing using a uniform traverse, the bracket is attached to the tension bracket bar with the screw in the right hand hole; for coning, using an accelerated traverse, the left hand hole is used.

An elongated screw hole in the supply bracket provides a means of adjusting it on the bar. Its lateral location in relation to the rotary traverse is important, for if the supply bracket is located too far to the right or left it may cause the yarn to jump from the groove at the end of the traverse and create stitches. This condition is most likely to occur at the nose of the cone when the supply bracket is too far right.

The adjustment to correct this condition is best made with yarn running on the spindle, to permit seeing when it begins to traverse properly. It is an easy adjustment to make, although some fixers mistakenly loosen the screw in the bracket too much and thus make it difficult to move the bracket only the slight amount needed; usually all that is required is about 1/32" or less.

The correct way is to loosen the screw only enough to allow the bracket to be tapped into position with a wrench. There is a lip on the bracket which aligns it with the rotary traverse. It is important to see that this lip contacts the bar squarely after the adjustment is made.

Whenever the Roto-Coner is changed over from parallel tubing to coning, the supply bracket should be switched from the right to left hand hole. The final adjustment should be made in the same manner described above; that is, the screw should be tightened only enough to allow some movement of the bracket, which should then be tapped into position with the spindle running.

*From a recent issue of "Twists and Winds," a publication of Universal Winding Co.

What does merchant-blended cotton offer a mill?

NEW APPROACH TO BLENDING

by Joel F. Hembree
Research Director
Otto Goedecke, Inc.

Exclusive

BLENDING and mixing are one and the same in the thinking of many. This is a confusion in terminology. There is a substantial difference between the two.

Mixing cotton has been almost standard procedure since spinning and weaving by mechanical means came into use. Blending has its basis in measurement and proportioning. Measurement and proportioning are not required in mixing. A blend is made when different compatible components of known properties are mingled in such a way that their characteristics emerge as a new and reproducible product. A mix is something in which the components are recognizable but more or less evenly diffused.

Mills are interested in the physical and chemical properties of cotton, for it is these they utilize in manufacturing. Uniformity of raw material is a most important consideration. And uniformity cannot be controlled without adequate measuring techniques.

Inability to measure, prior to the development of such instruments as the Micronaire, Pressley Strength Tester, and Fibrograph, made it impossible to exercise the necessary control over the raw material. If cotton is handpicked three or more times during the harvest season, there is some control because cotton grown under like environmental conditions is carried to the gin in the same load of seed cotton.

Though the same general level of fiber properties may exist in a small area at a given time there is substantial variation from area to area. Classification methods based on the human senses do not account for the area-to-area or year-to-year variations in cotton. Because of this the responsibility of the merchant in the past ended at the mill door.

Now, however, with accurate instruments for measuring certain of the characteristics of the fiber important to the mill, such is no longer the case. The merchant may be called upon to deliver cotton with specific characteristics that are not in the crop. There is a road out of this dilemma—blend-

ing by the cotton merchant.

Before going into the wherefores of blending, it is well to discuss certain other problems associated with it that have their origin in present day harvesting and ginning methods in a large part of the cotton growing country.

Cotton Properties Variable. Like all living things, cotton responds to the physical environment about it. The most consistent thing about the physical environment in which the cotton plant lives is change. Consequently there is variation in the properties of the cotton on the same seed, within the same boll, on the same plant, ad infinitum.

Part of cotton's strength lies in the variation, because of the versatility made possible. At the same time the variation is a barrier to assembling large lots of cotton with certain desired characteristics. Insecticides, fertilizers, and irrigation make it possible to control the variation to some extent. Soil and climate set the stage and on it man makes such changes as he can. Certain elements of the economic environment impair the control associated with good production practices in many parts of the cotton country.

Harvesting methods are changing in many areas. A large part of the crop is now harvested by snapping or stripping, or by spindle harvesters. Such methods of harvesting may result in an unpredictable mixing of fiber properties.

The economic environment decrees that more and more farm labor will be absorbed by industry. Consequently, rough harvesting will increase from year to year. Ginning partially eliminates some of the unpredictability injected by rough harvesting; however, there is no ginning method that can give cotton properties not imparted by nature or assure the distribution of characteristics desired by the mill.

Studies made by responsible agencies reveal that the use of excessive heat in ginning impairs the manufacturing performance of cotton. The situation associated with rough harvesting and inability to control heat from bale to bale makes necessary a technique that can be used to ameliorate the condition: Blending provides a means for minimizing the problems created by man and nature.

Even-Running Lots Not the Answer. The segregation of cotton into even-running lots by grade, staple, and character, as done by conventional merchandising, does not solve the problem. Modern cotton merchandising employs instruments to measure fiber properties it has been found correlate with mill performance. If cotton with desirable characteristics is not present in the crop of last year or that of this year, what then?

Obviously a way must be found to get the desired properties. Since nature did not put them in the desired combination, man must, as he has done when the cotton from one area was weak and that from another strong.

No new technique can emerge until there is a basis for it in the available fund of knowledge. Our company saw in the techniques for measuring the properties of the cotton fiber, a basis for providing mills with a raw material possessing stability of characteristics. The small cost of blending, using quality control, is justified in the uniformity of the raw material supplied the mill.

The mill wants bales with the same distribution of fiber properties in the bale and from one to the other. Blending makes possible enhanced randomization of the fibers. An object of mill processing from opening through drawing is to randomize and parallelize the fibers. Blending to a specific formula after measurement of fiber properties provides a raw material ready made for randomization.

Blending Method. Here is how we blend cotton to give uniform fiber properties throughout each bale, and from one bale to another:

The bales to be used in making a blend are selected from cotton previously tested for fiber properties. Based on the test data, the required qualities are set up, by quantity and sequence. After this has been done, the cotton is fed to the blending equipment.

The illustration [on page 87] shows the equipment we use*. Each line delivers to an SRRL opener, which in turn delivers to two Constellations in tandem. The flow is so arranged that either or both Constellations can be by-passed.

The cotton from the Constellations is brought together to the condenser and delivered to the press box. Bales are pressed to flat, standard, or high density, as desired.

An automatic sampler is used to keep check on the quality of the blend and to avoid sampling the completely wrapped bale by cutting with a knife in the customary way.

The combination of equipment used in making a specific blend is dependent on the nature of the order being filled. There is complete flexibility, so that a blend can be made by any one of several possible combinations of equipment.

Advantages. There are many advantages inherent in blended cotton. However, before going into the various considerations it is well to remember four things:

1. Blended cotton is a new approach in modern merchandising that makes it possible for textile mills to secure stability in the raw material.

2. A new dimension is added to the utility of mankind's most versatile fiber by within-bale uniformity.

3. Blending makes it possible to bring the desired properties together in the proportions required.

4. Environment, harvesting, and ginning do not move parallel to mill requirements; the problem created can be solved to a large extent through blending.

There is not space to discuss the many and varied advantages of blended cotton. All of the reasons for blending are wrapped up in the phrase "Blend to Save Money" —TEXTILE INDUSTRIES, December, 1958, p. 113.

The use of blending by the merchant as a means for improving merchandising is a new concept. Logic dictates that it is efficient to blend at the point of origin. Stocks of all kinds of cotton are larger there and the mill is assured a reduction in many of its

*Since the photo was made, four more blender-feeders have been installed. There are now two lines of blender-feeders, six to a side.

operational problems.

Among the many advantages of buying cotton blended at the source are:

1. Price and quality are equated.

2. A desired combination of fiber properties can be made.

3. Variation of fiber properties within and between bales is stabilized.

4. Fiber properties as recombined in a blend give combinations not available in the customary bale.

5. The recombination of measured fiber properties introduces an additional source of uniformity through utilization of the interrelationship between fiber properties.

6. There is relatively little variation in bale weights.

7. The tare from bale to bale is indentical.

8. The waste percentage is practically the same from bale to bale.

9. The mill pays less freight per pound of usable cotton.

10. The relatively small amount of waste present in blended cotton makes it possible for mill machinery to do a more efficient job of cleaning.

11. Acquisition of raw material is made easier for the mill.

12. The record keeping and inventory problem is reduced.

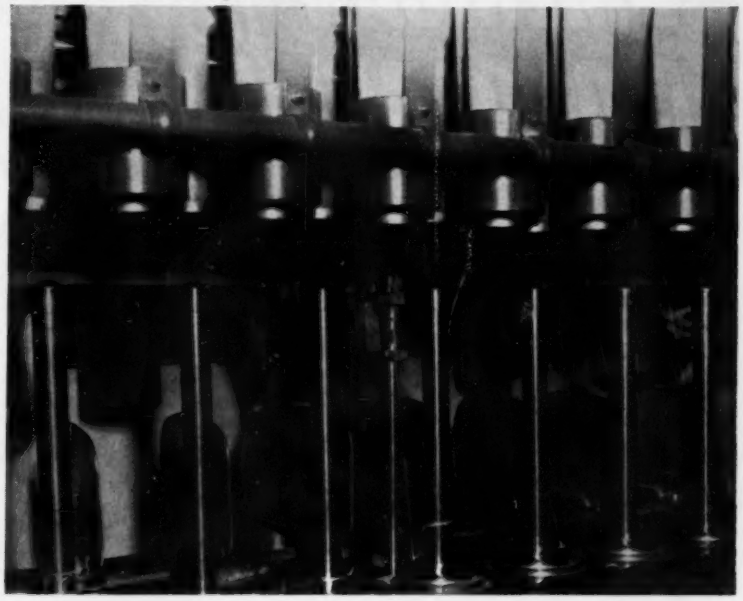
13. Quality control when using blended cotton consists of examining a relatively few samples of raw material as compared with the costly process of checking each bale when using other cotton.

14. Stability in the raw material is transmitted as efficiency during processing.

15. Intimacy and randomization of fiber blending is directly associated with uniformity of final product.

Blending is not a recent development. The experience of mills at home and abroad has been drawn on to arrive at the techniques used. The techniques and methods used have behind them five years of study and research. As new equipment is available it will be tested as a means for improving the blending process.

The automatic spinning frame doffer had just gently lifted in one operation the 240 full bobbins from the spindles when this close-up photo was made. Note the horizontal bar in the upper part of the photo. Attached to it are the pneumatically controlled rubber graspers which are holding the full bobbins.



Automatic spinning frame doffer developed by mill research group

■ AN AUTOMATIC doffing machine for spinning frames has been developed by Deering Milliken Research Corp., and officials of the firm have expressed satisfaction with results achieved from the apparatus during extensive mill tests.

How It Works. Employing pneumatically controlled rubber graspers (see the accompanying illustration), the automatic doffer gently lifts full bobbins from an entire frame and replaces them with empty bobbins.

Then the machine is moved on overhead rails to a loading station where (1) full bobbins are transferred to other automatic handling equipment and (2) empty bobbins (automatically placed in the loading station) are picked up. The machine is then ready to doff another frame.

Benefits Expected. DMRC officials believe that the automatic doffer will soon pay for itself in tangible savings and also provide many additional intangible benefits. They report that use of the equipment results in the following:

Spinning frame downtime for doffing is reduced about 85 per cent. Doffing labor savings of 30 to 50 per cent are realized, plus substantial savings in indirect labor costs and fixed overhead cost. In addition, yarn quality is improved.

Mechanical doffing leaves a free tail of yarn which eliminates the conventional unwinding operation by the operative on quills and bobbins. Machine handling of yarn is also expected to reduce the waste resulting from greasy and dirty yarns caused by manual handling.

The automatic doffer can be tied into material handling systems to preposition bobbins for spoolers and quills for looms. Consequently it can be counted on to effect substantial reductions in battery filling and spooler tending costs.

It is expected that some textile equipment manufacturer will be licensed to build and market the automatic spinning frame doffer.

AMERICAN MONORAIL

CLEANS ALL POINTS!

with combination upper frame and under frame cleaning unit

special air outlets are cut in the cleaner boots at the time of installation to insure proper cleaning of all parts of the spinning frame

CLEANS BEST BECAUSE

1. Air reaches all parts of the frame including back guides, weights, idlers and samsons.
2. Necessary amount of air to clean any area can be delivered to that area.
3. Total amount of air is easily controlled by adjustable air intake.
4. Unit can be changed from closed loop operation to reversing type in minutes.
5. Four adjustable and directional creel cleaning outlets will clean all types of creels.
6. This unit cleans 20 or more frames efficiently.
7. Bolted track and standard curves make revised track layout easy.
8. Ceiling cleaning unit (over 1 horse power) will clean ceilings as far as 16 ft. away.
9. Cleaner has ample horse power to do an efficient job.

CLEANS SAFELY BECAUSE

1. All metal parts of cleaner are above head height.
2. This unit or any other American Mono-Rail unit cannot fall off the rail.
3. All boots completely flexible.
4. 50 volt—3 phase current carried in the rail. No fragile conductor bars or insulators.

MAINTENANCE FREE BECAUSE

1. All bearings are sealed.
2. Cleaner requires no lubrication.
3. Travel is stabilized.
4. Many parts are duplicates.
5. Most parts accessible for easy maintenance.

AMERICAN MONORAIL

Engineered Automatic Cleaning and Handling Systems

OVERHEAD HANDLING EQUIPMENT

13106 ATHENS AVENUE
CLEVELAND 7, OHIO

MEMBER OF AMERICAN TEXTILE MACHINERY ASSOCIATION

Textile growth

will require more textile graduates, more operatives, and more investors

by E. G. Field
E. G. Field & Associates

Exclusive

THE consistent growth of population in the United States provides a continuously expanding market for goods made from textile fibers, including those of cotton, wool, and the synthetics. This growth will require more mill activity, with more jobs available for textile graduates and industrial workers.

To picture this continuous growth in the textile industry, the U. S. Department of Agriculture statistics (from "The Cotton Situation") have been placed in a simple chart covering the last 38 years, in two curves showing the annual consumption of cotton and of all fibers. For comparative purposes, two relatively smooth lines show the necessary growth relative to the population. So there are four lines in the chart.

The consumption of these raw materials through manufacture in the United States is in billions of pounds. By dividing the annual consumption by the population, the consumption per capita was obtained; for what it showed, see *Table 1.*

In the first ten years, 1920-1929, there were some periods of speculative prosperity. In the second ten years, 1930-1939, there was a period of severe depression, followed by some war threat. The average per capita consumption in these twenty years has been used as a basic rate that was applied to the annual population in the first twenty years.

These same per capita figures were also applied in the following eighteen years, as shown by those lines continued as dots. This was done to obtain the necessary growth relative to the population

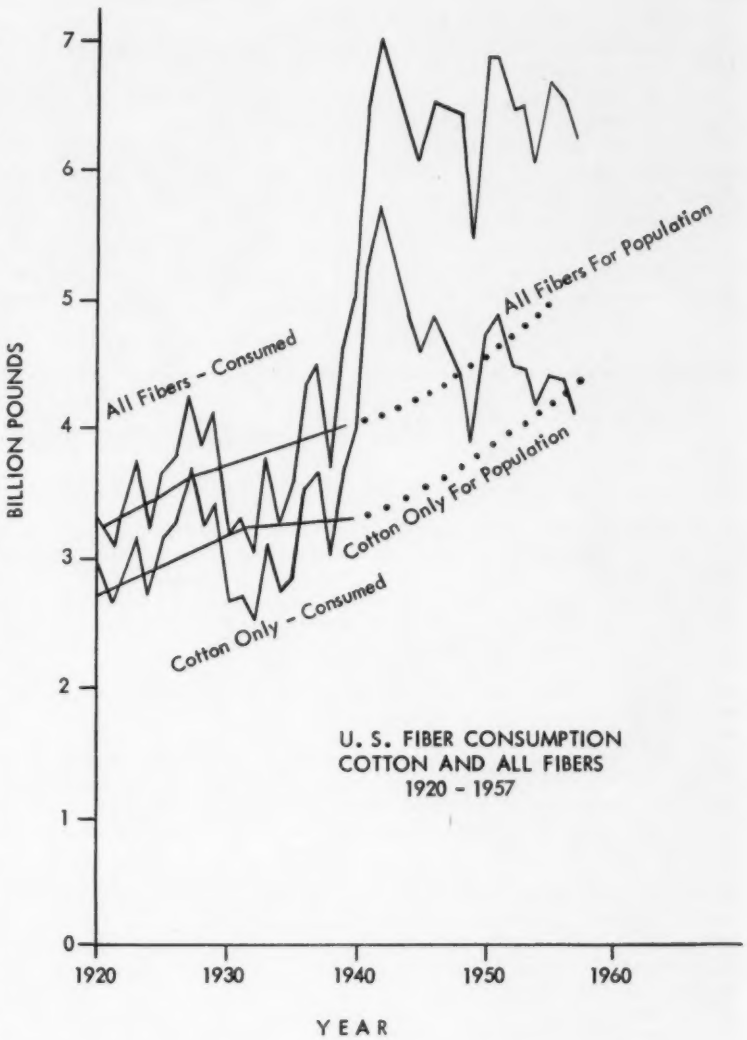


TABLE 1. Per Capita Consumption of Textile Fibers, 1920-1957

Calendar Years	Years Included	Annual Pounds Per Capita	
		Cotton Only	All Fibers
1920 - 1929	10	26.7	31.0
1930 - 1939	10	23.5	28.7
	20	25.0	29.8
1940 - 1949	10	33.7	44.3
1950 - 1957	8	27.5	40.3

and is used for comparison with the actual consumption.

WORLD WAR II started in 1939, followed by the attack on Hawaii in December of 1941, and resulted in 1942 being the year of maximum total consumption of fibers. During this war period, the consumption of fibers was exceptionally high.

For several years following the war, consumption continued relatively high to supply a part of the needs of the world. As other countries were given machinery and became self-supporting, the production load in the United States declined somewhat, but is still above the pre-war per capita rate.

The continuing growth of population has been effective in raising the annual requirement for textile fibers. In 1957, the consumption of cotton was close to the basic requirements for the larger population. The consumption of all fibers has continued relatively higher than in the base period, mostly due to the development of the synthetics.

Although the man-made fibers have encroached upon cotton in some instances, especially in automobile tires, otherwise they have expanded the total textile market. Cotton has continued desirable for many purposes.

This growth in population has been accompanied by a small increase in per capita consumption, so the annual consumption will continue high. At the same time, there has been a reduction in mill capacity as some mills have been abandoned. The progressive mills have replaced equipment with modern machinery. Capacity available has been decreasing, the requirement expanding.

The increased costs in the United States for cotton and other fibers have been accompanied by increased wages, so that manufacturing costs have gone upward. The competition between fibers and from imports has kept sales prices depressed. The profit situation has not been corrected. The economic factors must be balanced.

But job opportunities will increase as the textile industry further expands to satisfy the continuous growth in population. The textile industry will require more college graduates, more workers, and more investors.

How to save time when piece-dyeing Orlon-Dacron blends

Extract*

■ A NEW method has been developed for piece-dyeing blends of "Orlon" Type 42 with "Dacron" Type 54 which yields a considerable saving in time over previous methods. Also, the three-fiber combination of "Dacron," "Orlon," and rayon can now be dyed in two baths instead of the three baths previously recommended.

In this new procedure, "Latyl" Carrier A, disperse dyes, cationic dyes, and auxiliaries are added to a single bath and both fibers dyed simultaneously in a beck.

"Dacron" Type 64, because of its dyeability with cationic dyes, should not be blended with "Orlon" Type 42 for subsequent piece-dyeing. The new method has not yet been applied to package dyeing of yarns, but limited work with piece goods on the Burlington beam dyer has shown promise.

It is essential that dye becks be fully enclosed for dyeing either "Orlon" or "Dacron," and an auxiliary steam line in the upper part of the beck is helpful in maintaining the 208 F minimum temperature required for efficient dyeing. The auxiliary steam line is also useful for washing down the white crystalline deposit formed by the sublimation of the carrier during dyeing.

Procedure. All percentages listed in following procedure are based on the weight of goods:

Set dyebath at 120 F. Add disperse dyes (dispersed in hot water and strained). Add 2.0 - 5.0 gm/liter (0.27 - 0.67 oz/gal) "Latyl" Carrier A. Heat to 180 - 185 F at 3°/min. Add: 1.0% "Capracyl" Leveling Salt, 0.5% sodium acetate, acetic acid to pH 5, Du Pont Retarder LAN as required, and run 5 minutes. Add cationic dyes, run 10 min. Heat to boil at 1°/min. Boil 2 hours and sample.

No anionic dispersing agents should be added to the dyebath, as they are likely to cause precipitation. For this reason, the use of Glauber's salt should also be avoided.

To avoid rope marks, the dyed fabric should be allowed to cool to 170 F by radiation before rinsing. For optimum fastness, scour at 180 - 200 F for 20 minutes with 1.0% "Capracyl" Leveling Salt plus acetic acid to pH 5.

Additions of dye for shade correction purposes can be made at 180 F. If both disperse and cationic dyes are required, they should be prepared separately and added to the dyebath about 10 minutes apart.

Blends of "Dacron," "Orlon," and Rayon. In this three-fiber blend, the "Dacron" and "Orlon" components can be dyed simultaneously in one bath, and the rayon dyed at 180 F in a fresh bath. If necessary, staining of the rayon by disperse dyes can be removed by stripping with sodium hydrosulfite.

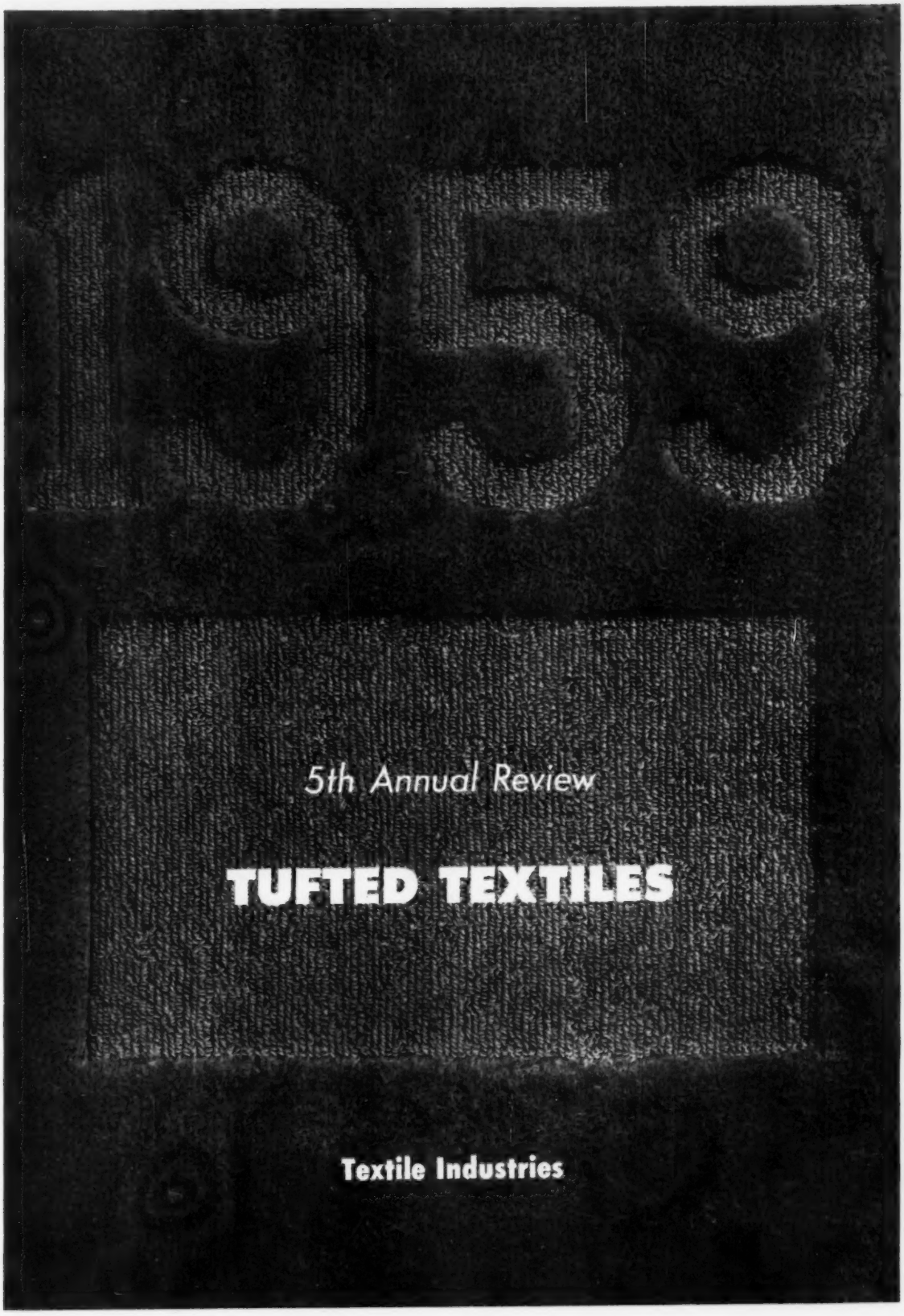
Finishing. In finishing blended fabrics of "Orlon" with "Dacron," probably the most important steps are (*a*) heat-setting, and (*b*) sanding and shearing.

Heat-setting should be carried out in hot air at a temperature of about 350 F, with an exposure time of 1 minute. Temperatures much above 350 F will yellow the "Orlon," while temperatures lower than 350 F are ineffective in stabilizing the "Dacron" to subsequent pressing. Infrared heat-setting is advantageous since setting is accomplished prior to any discoloration of "Orlon."

In conjunction with heat-setting, brushing or sanding followed by close shearing has been found to impart excellent pill resistance to fabrics tested. Singeing has not been found necessary, but could be used if desired.

The following sequence may serve as a guide for processing a typical clear-faced summer weight fabric: desize, scour, dye, extract and frame dry, pad on antistatic finish, dry, heat-set, brush or sand, and shear, press, semi-decate.

*From Bulletin X-97 of the Technical Service Section, Textile Fibers Dept., E. I. du Pont de Nemours & Co., Inc.


1959
5th Annual Review
TUFTED TEXTILES
Textile Industries

Tufted "sheepskins"

Use of only the sheep's wool for making polishing disks lets him keep his skin for growing more wool for tufting more disks . . .

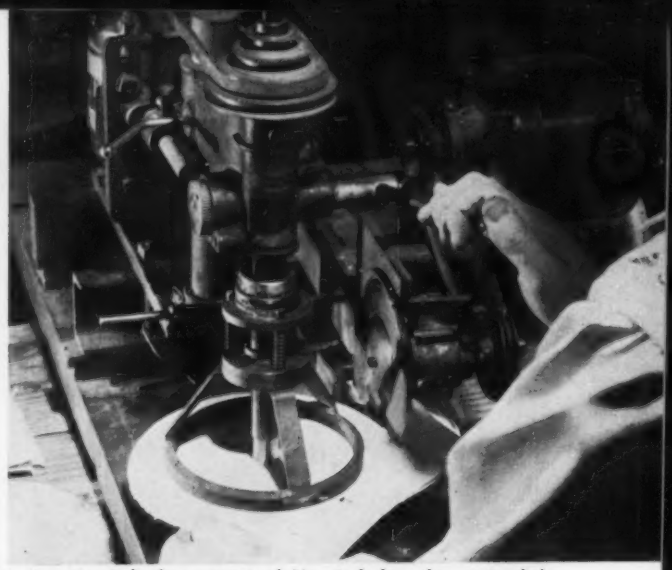
Staff prepared—Exclusive

NOT CONTENT with the accepted outlets for tufteds—outlets such as robes, scuffs, spreads, etc. —although his firm produces all those items, W. Hugh Sparks, vice-president of Sparks, Inc., Dalton, Ga., looked about him for something new, something different, and came up with a tufted polishing disk of the type often made of sheepskin and used with heavy industrial polishing equipment.

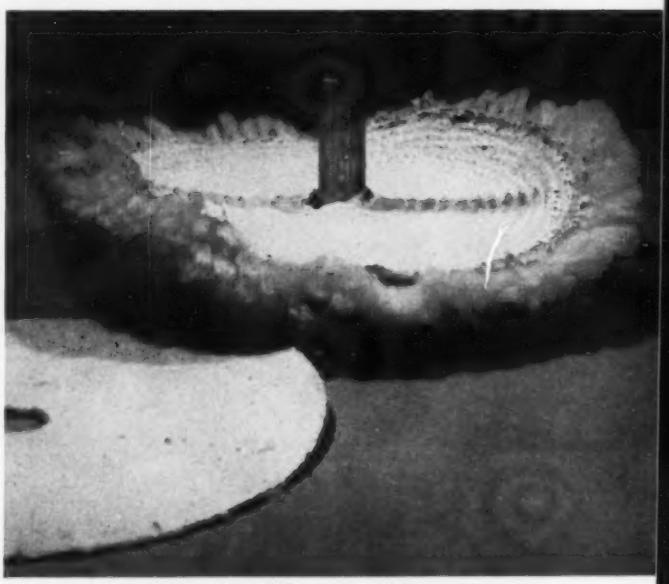
"My product is another outlet for tufteds," Mr. Sparks says, "and beats killing a lot of sheep."

The disks, made with duck backing, use 100 per cent wool tufting yarn. Made in sizes of 8¼", 7½", and 5¼" diameters, of approximately 3/16" gauge, with stitch count varying from six to seven per inch, they are "double laminated" from two thicknesses of the board-like No. 4 duck. The centers are reinforced with an additional circle of the same duck inserted at the top following cutting.

The adhesives used in the lamination withstand most solvents (gasoline, kerosene, acetone, etc. will soften it) which the disks are likey to be exposed to in normal usage. The woolen fibers may be cleaned as necessary, observing the precautions necessary in cleaning that fiber.

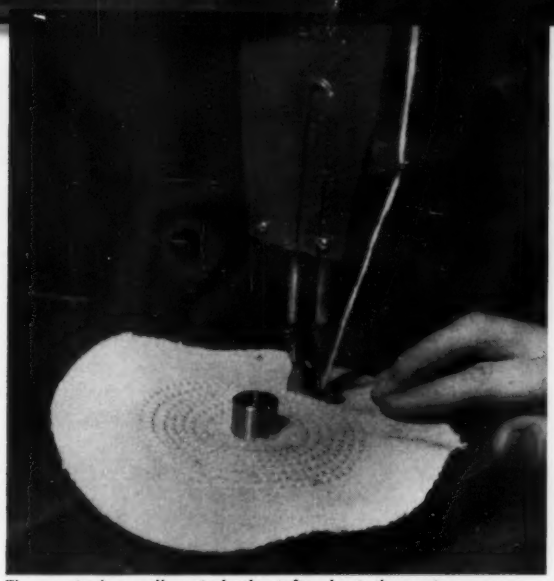


A jig cuts circle from square of No. 4 duck, makes center hole.

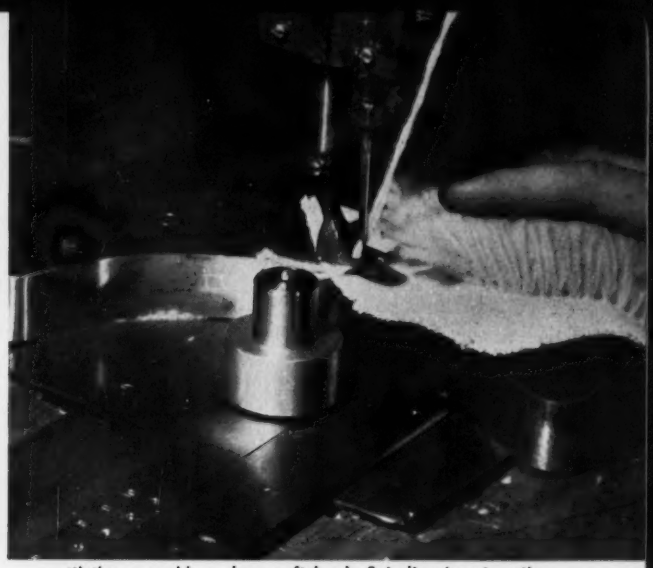


A heavy coat of cement almost hides center reinforcement . . . . . leaving final product ready for heavy duty.

A high-speed whirling against rubber block fluffs pile . . . . . .



Then a single needle spirals the tufts about the center . . . . . .

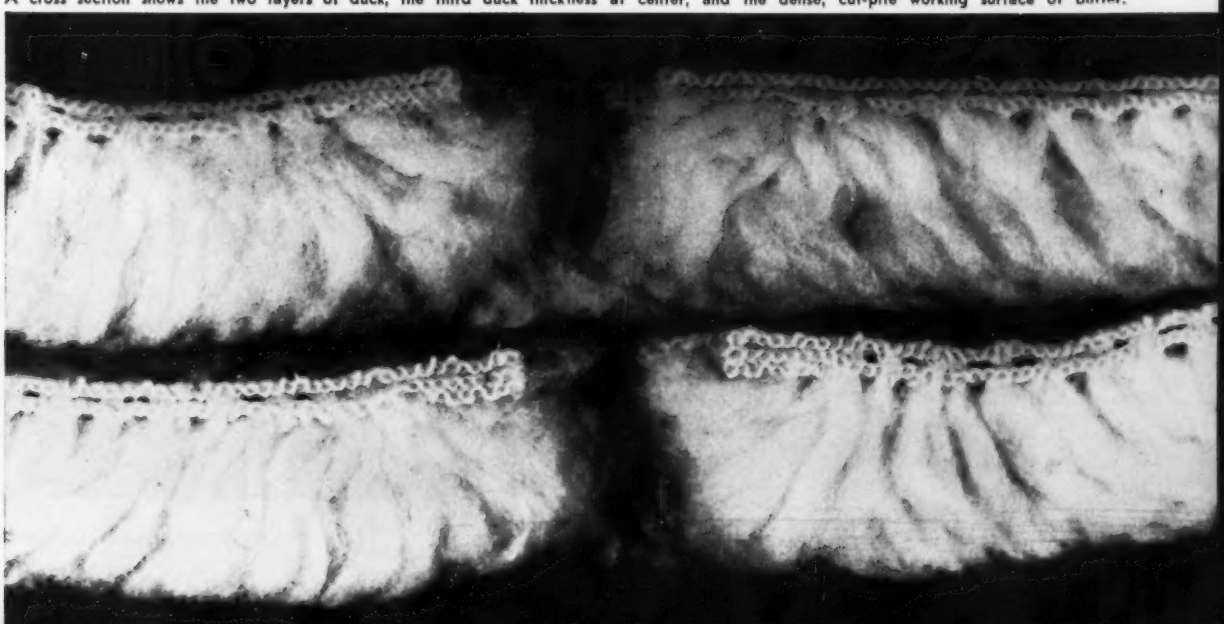


. . . until they resemble a deep, soft brush. Spiraling is automatic.

. . . as second thickness of duck is placed on cement.

Trimmer gives finished size, supplies "vulcanizing" pressure.

A cross section shows the two layers of duck, the third duck thickness at center, and the dense, cut-pile working surface of buffer.



THE tufted carpet industry has recently passed through a period of low over-all sales in the field of solid-color, piece-dyed floor covering. This was brought about by several factors, not the least of which was the sharp drop in production of rayon carpeting in medium to premium priced constructions.

Wool, the staple fiber of the carpet industry, had been introduced in tufted floor covering. These styles, produced usually from stock-dyed yarns, won wide acceptance in the medium priced range and up. Blends of stock-dyed carpet rayon and wool were also used to yield fabrics to retail in lower price brackets.

This styling trend was to the liking of many tufted operators, since little or no wet processing is involved and manufacturing capital expense is reduced considerably. The promotion of solution dyed or "dope" dyed rayon in carpet deniers was accepted readily since beautiful solid and tweed styles could be developed and manufactured without wet processing and retailed at very reasonable prices.

Styling from stock or solution-dyed yarn presents several serious disadvantages. Warehouse space is a problem, since full stocks of each color must be maintained.

This extends to the eventual elimination of all but the more popular colors and color combinations, resulting in serious styling limitations. A further disadvantage encountered by many producers was the uncertain supply picture of colored fiber and yarn in periods of peak production.

Complaints were heard of subpar quality resulting directly from poor color match from lot to lot, or within a lot, producing goods containing objectionable yarn streaks.

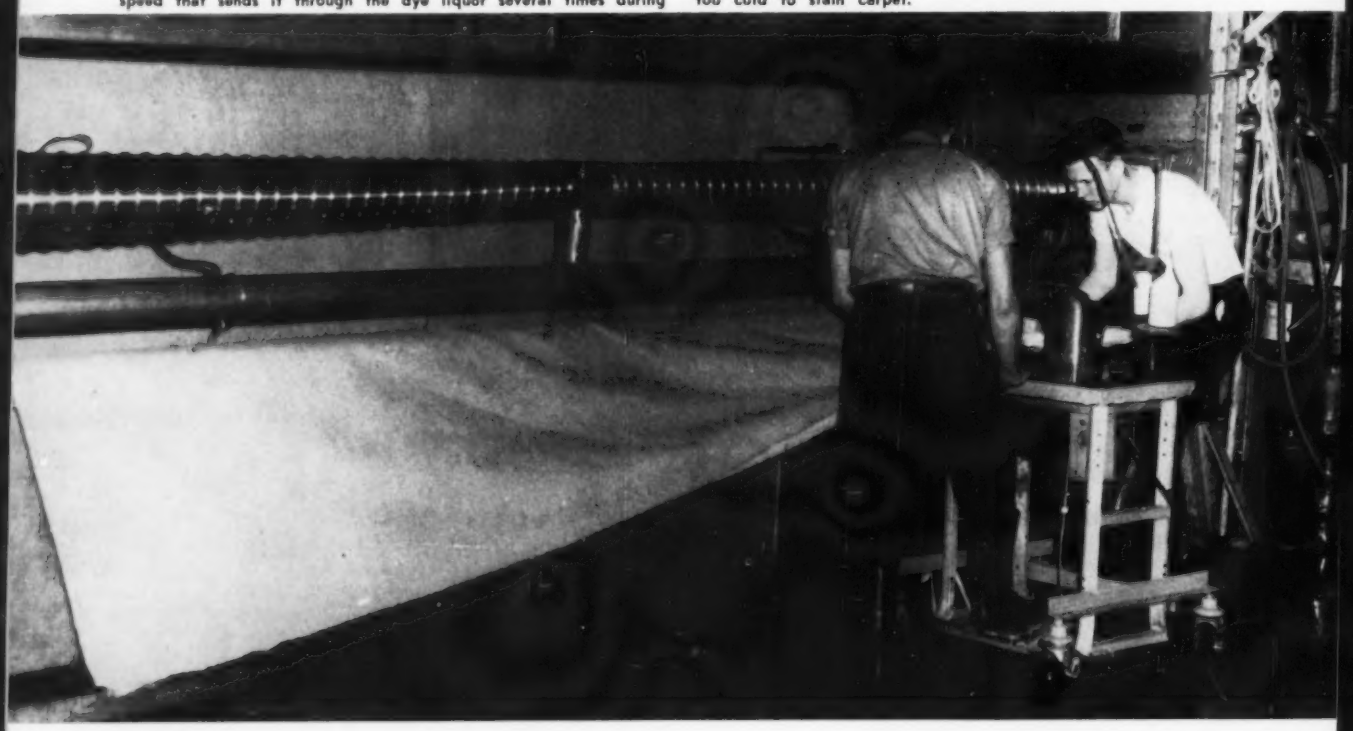
These factors and others have led to a strong move on the part of many tufted carpet manufacturers into new piece dyed programs. It is well to say at this point that in general the quality of these dyeings is better today than it has been in the relatively short history of the tufted carpet industry.

Nylon is being used widely today in the floor covering field. Its superb resilience, abrasion resistance, and ease of coloring along with a pleasing hand lend themselves admirably to this end. Plain loop, patterned, sculptured, as well as cut-pile constructions are meeting with strong acceptance.

In the nylon cut-pile category, twist-set carpet staple yarns are usually used since they permit firm, clean, stable surface textures to be created. Twist-set nylon yarns are produced by treating the natural staple yarns, in a loosely wound skein or package form, with steam or water near the boil. The yarn is then dried and wound on large cones for delivering to the tufter.

Tufting is carried out on conventional broadloom tufting machines and in general gives little trouble in this phase of the operation as long as the machine is adjusted properly and hooks and knives are in good shape. The undyed, unlatexed tufted goods are

These men are loading a beck which must work the carpet at a speed that sends it through the dye liquor several times during each critical five-degree rise in temperature. Entering bath is kept too cold to stain carpet.



usually inspected well at this point since defects are easily repaired prior to dyeing.

Dyeing and Finishing. Dyeing is usually done on unlatexed goods, using conventional dye becks modified to handle the great weight of this bulky material. These becks may be found in widths to 20 feet and capable of handling up to 1000 pounds of carpet. It is possible to dye heat-set nylon carpet on a pad range, but due to the immensity of these machines only a very few are actually in production.

Heat-set nylon carpeting can be dyed with neutral-dyeing acid dyestuffs, carefully selected for workability, from a long bath—most carpet becks are operated at a 20:1 liquor ratio. It has been found that through careful dyestuff selection, combination compound shades can be obtained which build up or exhaust "on tone."

Such combinations can be dyed with absolutely no shading from side to center or from end to end. Of course this is possible only after precise dyeing procedures have been established for each combi-

The finisher owes his ultimate success to his staff, those men and women who translate his wishes into products both beautiful and useful, for, regardless of his own abilities, it is the skill and sincerity of those who weigh the dyes (as below), apply the latex, man the dryers, etc., that the customer admires finally in the carpet she buys for her home.

The beck operator is assisted, not replaced, by today's automatic controls.

DYEING TWIST-SET NYLON

by Frank H. Cooper
Pride Carpet Mills

Exclusive

Supervision can rely on charts that give exact temperature readings against time. These are important to dyeing twist-set nylon, for, among other things, they permit close control over temperature rise.

These three men groom a length of carpeting for its final factory inspection.

Critical areas in dyeing twist-set nylon include:

Starting temperature

pH values, both starting and running

Rate of temperature rise

Liquor ratio

nation so that dyeing is under complete control, especially during the critical portions of the cycle.

There is little point in outlining a typical cycle for neutral dyeing acid colors, since each combination will require individual treatment. The critical areas in the cycle will be starting temperature, starting pH and pH during the temperature of progressive exhaustion, the rate of rise of temperature, and the liquor ratio.

It cannot be over emphasized that each dyestuff combination must be selected carefully and the optimum dyeing procedure derived. This should not be a trial and error situation, but a matter of dye behavior analysis. Once this procedure is proven in production it is recorded, and through the use of automatic beck controls it can be reproduced accurately time and time again.

Twist Variations a Problem. Even though the acid type dyes are generally considered satisfactory for dyeing heat-set nylon carpet in such properties as levelness, reproducability, light fastness, and spot resistance, they do tend to accentuate any differences in yarn construction such as twist variation or uneven twist setting. This can be a very serious matter in tufted carpet manufacture, since one end of face yarn showing only a trace difference in apparent shade or texture can cause a loss of literally thousands of dollars in second quality goods.

This problem is magnified in actual production, since these yarn differences are not detected until the goods are dyed and finished. As a means of reducing possible seconds the usual practice is to dye a test roll or portion of a roll from each change in yarn lot or creel change but even this is not foolproof. Yarn differences can occur within the cone.

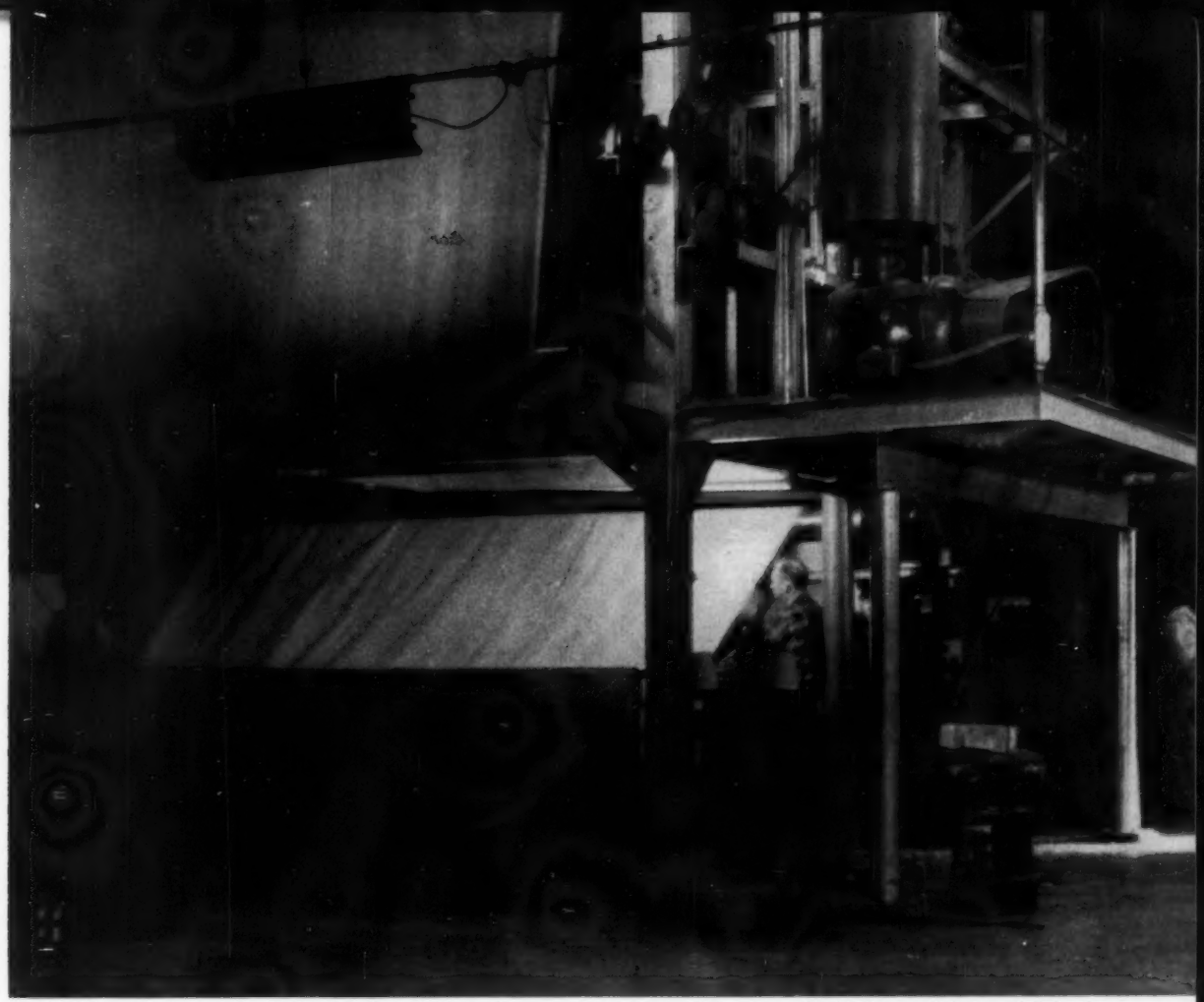
It has been found that some of these yarn differences can be minimized by dyeing the goods with disperse acetate type dyestuffs. Admittedly goods dyed with this class of dyes do not in general exhibit the same fastness properties as the acid colors, but they are considered well within the range of commercial standards by most manufacturers. The choice is usually determined by the quality of yarn used by a particular manufacturer and by his past experience with yarn streaks.

The procedures used in dyeing with disperse dyestuffs are well known, but here again it is very important to work out procedures in keeping with the dye combinations used and to insure that these procedures are repeated precisely in production.

Regardless of the class of dyes used in dyeing heat-set nylon a finish is usually applied to reduce static during subsequent finishing operations. In some cases soil retardant finishes are also applied at this point.

Following the dyeing operation the goods are extracted by squeeze rolls or vacuum and dried in hot air dryers of the loop or conveyor type. After drying the material can be inspected again and then latexed according to usual procedure. The finished carpet is then trimmed, sometimes brushed and sheared, inspected again, and then wrapped for shipment.

In conclusion, I mention again the significant increase in the volume of piece dyed carpet produced during the past year. This increase has been due primarily to the introduction of heat-set nylon as a tufted carpet fiber. Today tufted carpet manufacturers are producing thousands of square yards of goods made from this durable fiber and, equally important, they are offering these styles in a galaxy of colors—a feature economically possible only through piece dyeing.



Dwarfing the men who operate it, this steam-heated dryer will vacuum extract some of the water, dispel balance with heat, and fluff pile.

They add the finishing touch

Regardless of the carpet's fiber, construction, or pattern, the commission finisher must know how to dress it for the market

Staff prepared
Exclusive

DALTON Carpet Finishing Co., Inc., Dalton, Ga., is likely to be called upon at any time to finish a tufted carpet of any fiber, any texture, any weight, and any width. So, most of the problems incidental to such commission finishing are already solved, with the answers filed neatly away. Thus, when an all-wool carpet is to be finished, the routine is likely to be copied as follows:

Boil off at 100 F for 20 minutes in a bath containing one per cent ammonia and one per cent wetting agent. Drop bath. Add two per cent of an albumin type felting inhibitor (all proportions are based on the carpet weight which ranges from 800 pounds to 1,000 pounds per beck load) to a new bath, pour in five per cent Glauber's salt, and add the required weight of dissolved dyestuff. Add acetic acid to bring the pH to 4.0 (it is kept above 3.5) and bring the bath to 200 F over a 30-minute interval.

Keep the beck running while samples from both sides and the center are compared with control samples in the laboratory. When sample is matched for shade and levelness, begin dropping the bath and adding cold water. Adjust this running wash to allow it to run for twenty minutes, until the water temperature is approximately 100 F.

No further rinsing is needed—the carpet is ready for the dryer. This unit is fitted with vacuum

The woolen carpets are dyed in open width in becks that hold 1,000 pounds or more. Carpet shown here is being boiled off.

extractors which bring the moisture content down to approximately 100 per cent before the steam-heated ovens take over.

Such a procedure as the above is, of course, entirely too simple to work from day to day under all conditions and serves only as an outline. The real success of such an operation is in the wealth of detail mastered by the dyehouse staff, and that story would fill volumes.

Someone has to know what colors, and in what quantities, to add when the samples fail to match the control swatches, what action to take when the sides do not match the center, how to handle wool to prevent crushing or felting it in its wet state, how critical is the speed at which a bath temperature can be raised to 200 F, what must be done to a bath that is exhausting too rapidly or too slowly, what oven temperature will dry best and fastest without fiber damage, how to know just when a carpet is the least bit too damp to be rolled without damage, how long can a wet carpet lie without damage under given conditions, if a 20-minute running wash is sufficient, how *clean* must a beck be before a carpet of a different color can be dyed in it safely.

One day the order may be for dyeing several thousand pounds of wool and for treating it with a permanent mothproofing compound. The next day the order may require a switch to twist-set nylon (nylon in some form makes up the greater part of the fiber array finished here), and the switch is taken in stride.

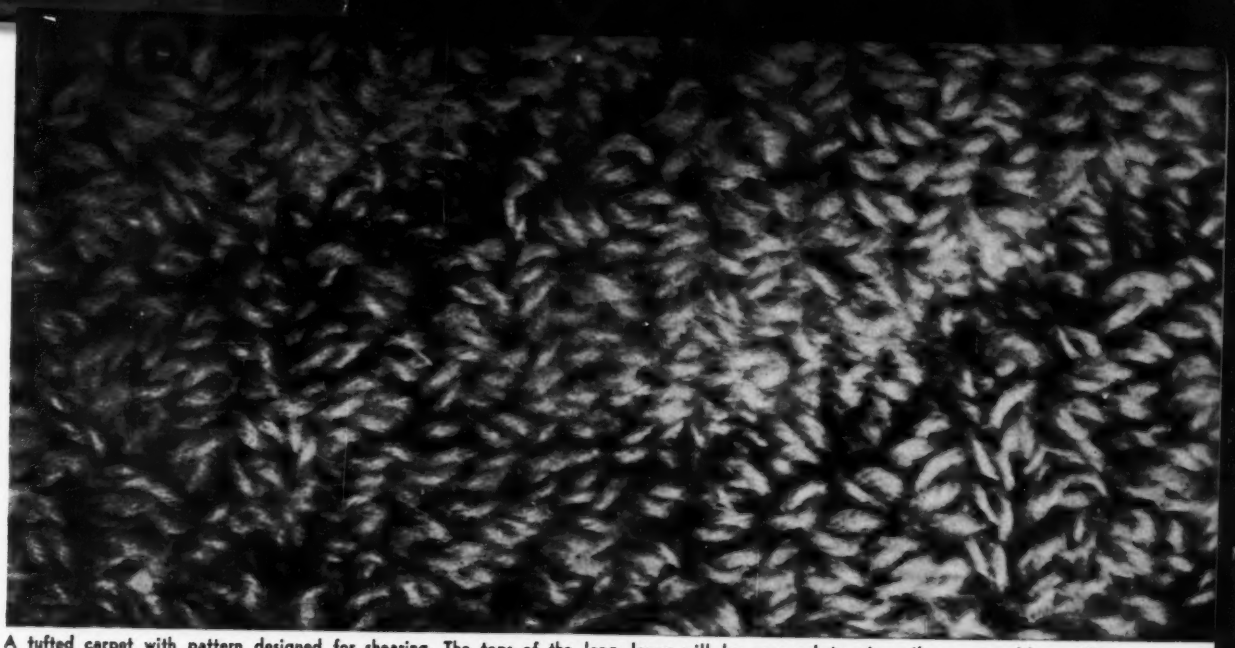
Commission finishers must have long memories, for every conceivable finishing request eventually makes its way into the dyer's office. In this instance the long memory consists of some 8000 dye formulas, complete with samples, tucked away in the files.

It does not take long to match a new sample with a prototype from the files. Even if an exact match is not on hand, there usually is one close enough to serve as a starting point in determining bath and procedure.

The Shearing Operation. Part of the finishing operation often includes shearing. If the carpet is of cut pile, the "fuzz" and the too-long ends must be knocked off to give the surface "that certain smoothness." Sometimes the pile may consist of high pile in two lengths to be clipped away to give the effect of a combination cut- and loop-pile surface.

The shearing machine will accommodate widths up to 15′ 8″. A two-shear unit, it normally requires two passes to reduce the average loop-pile carpet to the desired height, but it needs only a single try at the cut-pile styles. Cutting speed is about 12 feet per minute.

The carpet is threaded into the



A tufted carpet with pattern designed for shearing. The tops of the long loops will be removed to give pile a cut-and-loop effect.

first section, the knife is lowered by sight to the approximate cutting depth, and the final cutting depth selected by "ear." It is adjustable while running, and the operative can judge by the sound from the cutter if it must be lowered or raised to give the desired pile finish. This process is repeated at the second shear.

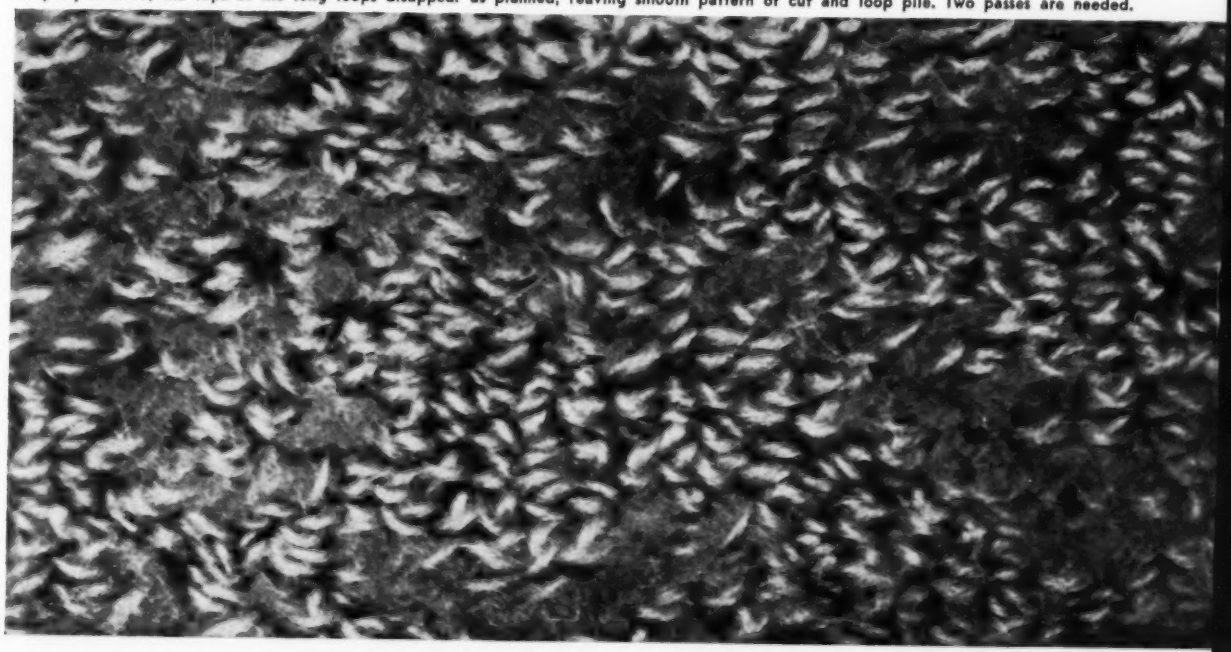
Seams must be cleared by lifting the cutters to let the thick places pass. There being no automatic devices to control this, the operatives must initiate the passing motion. Manual switches (buttons) cut in a pneumatic system that lifts the heavy members. A second pneumatic system oscillates the cutters through about a three-inch stroke.

A rotary brush on the No. 1 cutter brushes away at the back of the carpet to remove any masses that might lift the pile into the knife and thus cause damage to pile or mechanism. A second brush on the No. 1 cutter lifts and cleans the pile.

When two passes are required, the carpet is turned to allow the last end through on the first pass to be the first end through on the second pass. Pile that otherwise might be passed over is thereby cut on the second attempt.

Aside from periodic sharpening, the shears require little maintenance. Sharpening, or honing, is

Properly sheared, the tops of the long loops disappear as planned, leaving smooth pattern of cut and loop pile. Two passes are needed.



The two-shear unit is loaded at the extreme right. A scray (behind box) is used whenever runs of several rolls are being made.

done while the cutters revolve backward against their ledger blades, coated with a light film of a lapping compound or other suitable abrasive.

This compound is applied appropriately—from a small, leather-covered board—in a cutting grade (grit size 280) and a finishing grade (grit size 500) to the moving cutting edges. The operative, working the board slowly along the length of the running knives, applies the thinnest of coats.

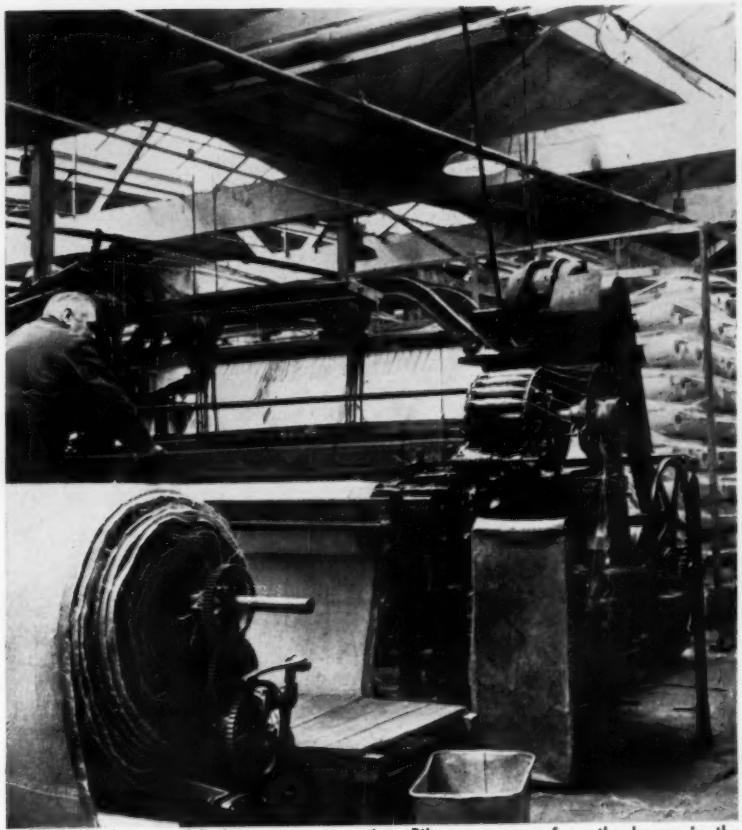
When all sparks cease and his ear tells the operative the blades are nearing the required degree of sharpness, the cutter is stopped when he fingers the cutting edges. If the edges do not feel sharp enough, the process is continued.

The ledger blades that act as the fixed part of the big "scissors" can be moved forward or backward to present an unworn working surface to the cutters. This is done several times per week until the cutting edges themselves need reconditioning.

The final setting, ledger blade to cutter, in each case is close enough for the shear to knife through a single layer of facial tissue. A too-loose setting here leaves rough streaks along the sheared pile; a too-tight setting burns away both cutter and ledger rapidly.

Single rolls are not sent through the scray but are mounted as shown here. The boxes bearing carpeting requiring two passes through the machine may also be returned at this point. Operatives must detect all seams in time to open cutters and let them pass by.

New techniques worry British tufters



A Northrop loom modified to weave carpeting. Pile yarns come from the beams in the background; paper and cotton ground yarns are supplied from conventional loom beams.

by P. Abbenheim
Exclusive

TUFTING came as a shock to British carpet manufacturers and machine builders who had long been accustomed to accepting the "established" order of things and were, consequently, unprepared for the impact that this new method of manufacture was to have on their markets.

Tradition had neatly divided markets into well defined sections such as Wilton, Axminster, etc., while the predominant fiber had always been, and was expected to remain, wool. Why bother with new, cheap substitutes when the trade was happy with the established fiber and could be assured of selling carpets made from it?

The impact of tufted carpets, however, did not merely shock the British carpet manufacturers into action, it also promptly stimulated inventive thought into considering ways and means of making pile floor coverings by other techniques, and today there are several new manufacturing techniques which are being used, or are on the verge of being used, commercially.

The Bartuft machine, shown at the big textile machinery exhibition in Manchester, England, last October (TEXTILE INDUSTRIES for Dec., 1958, p. 90) attracted much attention.

In another part of the trade, a quiet little firm is busily making carpets at a rate somewhat below the rate of expanding sales, on specially modified terry looms.

A machine builder in Yorkshire is reported to have developed a loom which is said to be running commercially, although no official details of it have yet been released.

Another firm is reported to have made a machine that produces a pile floor covering by an extremely unconventional system.

These are but four new methods of making fibrous floorcoverings which have emerged since tufting appeared in Britain about five years ago.

But this is not the only aspect of carpet development that is now being considered by the carpet trade. The carpet manufacturers now realize, after not inconsiderable heartsearching, that there might be a real need for pooled cooperative research into improving carpet manufacturing techniques, examination of carpet structures and how to improve them, and also a thorough investigation of the new range of man-made fibers that is available to them.

On the question of patterning, the exuberant enthusiasm of one tufting machine manufacturing firm has been coupled with the discovery of the fiber reactive dyes to give a carpet printing machine that is ideal for printing rayon pile tufted carpets, although

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432

the builders claim it will work on virtually any type of carpet.

THE NEW APPROACHES

Let us look first at the new manufacturing techniques which have been or are in process of being developed:

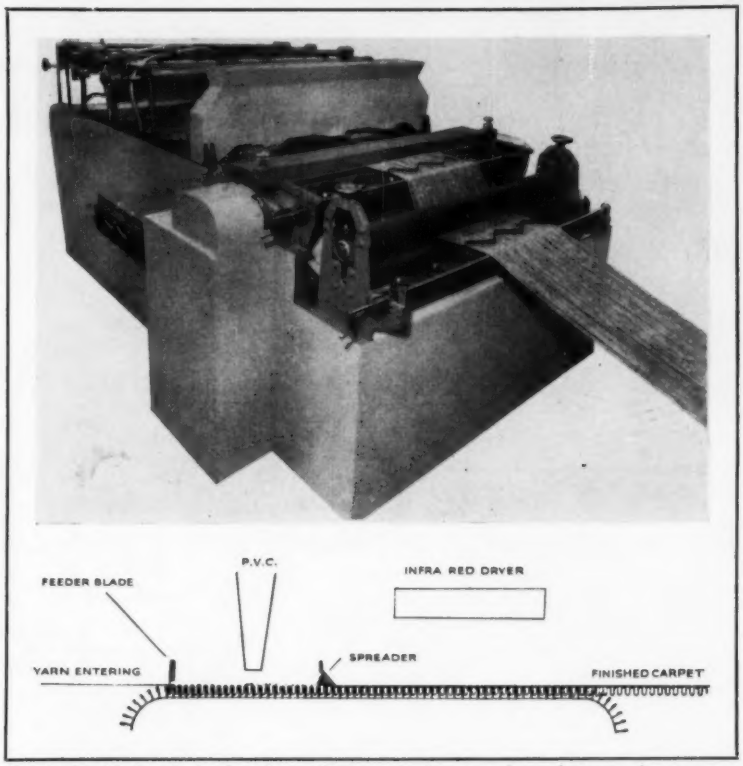
Needleless Loops, No-fabric Backing. The machine that has made the greatest impact on the trade is the Bartuft carpet making machine. Its actual system of production is extremely simple—a number of ends of yarn or even a web of combed fiber, sufficiently wide to provide pile across the desired width, is led into a feed section of the machine. Generally speaking the ideal method is to work from beam, although it is quite feasible to use a creel as for tufted carpets. Yarn is fed through an expanding comb which seperates the different ends and arranges them evenly across the width of the machine.

This sheet of yarn is then taken into the tuft-forming zone of the machine. The tufts are placed between laminates in a conveyor by means of a blade that comes down as the conveyor comes up to the horizontal position, opening as it passes around a curve.

As the slatted conveyor then comes to the horizontal position, the laminates close and firmly grip the yarn which is pressed between them. This grip is maintained until the conveyor reaches the delivery end of the machine and curves down, the laminates automatically opening to pass round the curve, simultaneously releasing the pile.

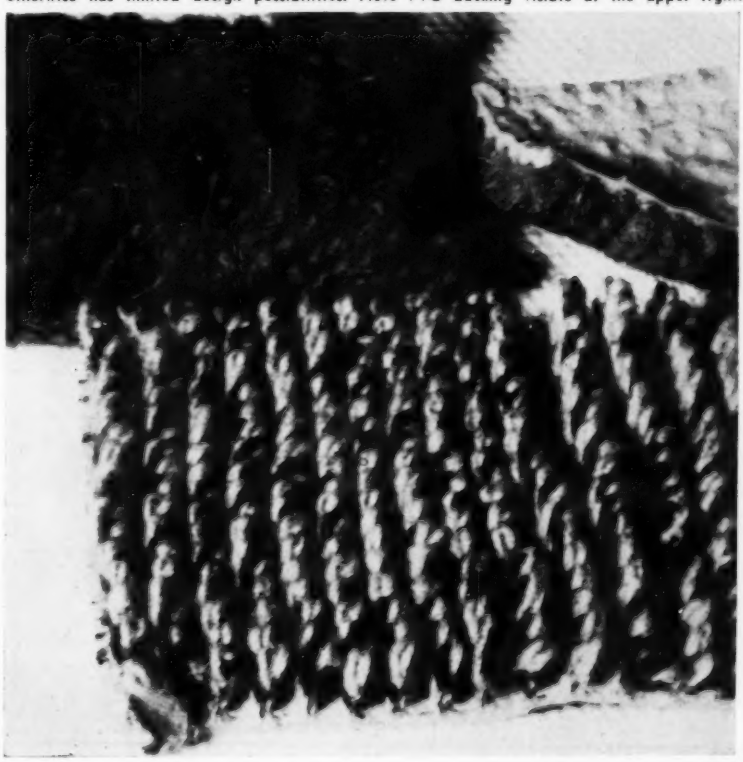
Once gripped in this manner, the looped yarn is carried beneath a hopper in which is a polyvinyl chloride (PVC) paste that is slowly metered out onto the surface of the conveyor. This paste coats the yarn ends and penetrates them to lock them firmly in position. A doctor blade is used to maintain an even distribution throughout the length of carpet.

After it is coated in this way, the material is then taken beneath a bank of infrared heaters which dry the PVC and so com-



The feeder blade of the Bartuft machine tamps the yarn sheets between the conveyor laminates to form loops. PVC is then applied, spread, and dried in continuous operation.

Bartuft samples. The machine can produce a number of pile heights and "gauges" but otherwise has limited design possibilities. Note PVC backing visible at the upper right.



JUST WHAT THE DOCTOR ORDERED

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plete the formation of the carpet. Should the machine stop for any reason, the heaters automatically turn upward and so do not continue to overheat the portion of PVC stationary beneath them.

This machine, it will be appreciated, is extremely simple in conception; and the makers claim that it can be used effectively with all types of yarns from the finest down to the very cheapest. Manufacture is a single stage process, and no backing cloth is used, although the additional weight of backing compound required might, in the circumstances, largely offset the cost of a backing cloth.

For an inexpensive floorcovering, the Bartuft promises to be a very interesting and inexpensive machine.

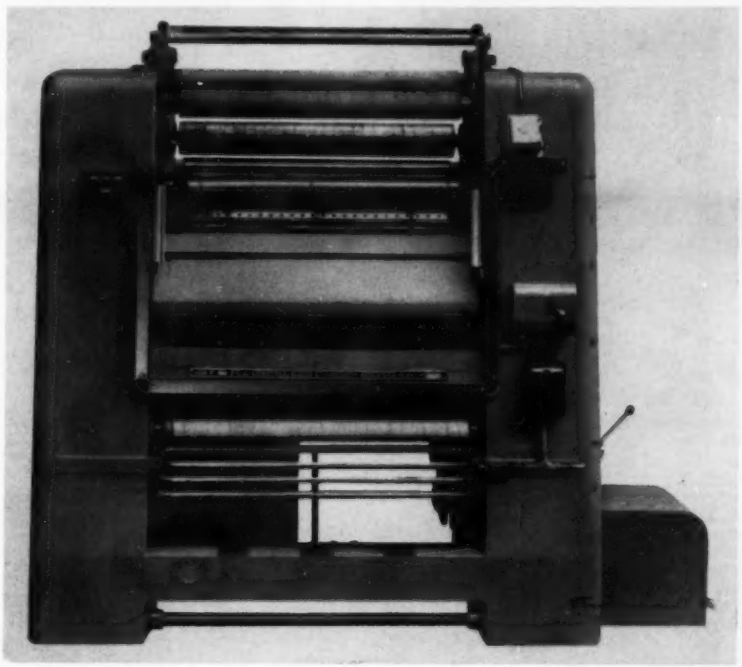
It is worth noting that it has not been restricted to making carpeting only from yarns, but it has also effectively made some floor covering from a web produced on the Birfield-Callaghan non-woven web forming unit. This web was fed into the machine and converted into a ribbed, loop structure that could be of potential interest to automobile manufacturers and anyone else seeking a simple and yet very inexpensive floorcovering.

One possible disadvantage of this machine might be in the type of structure it produces. It is already well known that plastic sheet once nicked, tears very easily. This might well be a defect of the Bartuft carpeting, but it should also be remembered that the thickness of material applied as a backing is considerably greater than the type of sheet commonly encountered.

Weaving Loops onto One Face. A small firm in Lancashire has evolved a new carpet making technique and is now commercially exploiting it. Basically they have taken an ordinary terry loom and converted it in such a way that it throws a loop on one face only. This technique has been patented, although it is possible that the firm would consider licensing anyone interested.

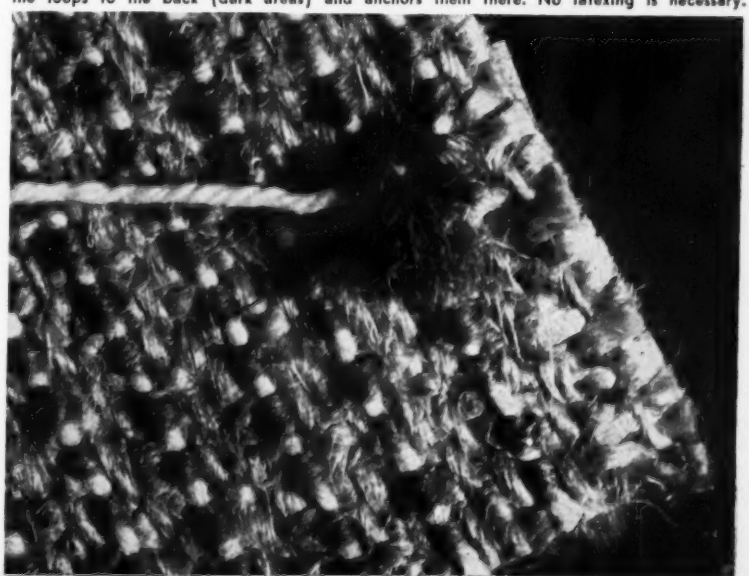
Rate of production of carpeting

The top are Bartuft samples, and the white one contains a nonwoven fabric which was substituted for the conventional pile yarn. Tufts in the foreground sample (made on loom below) are locked in by the strong cotton thread visible to right.



This 36" model needle loom produces the fabric at a rate of 120 rows of tufts per minute.

Jute backing is used for the fabric, and the pile is inserted in it by an interchange of loops. Needles carrying strong cotton thread pierce the back and form loops through which the pile yarn is threaded. Pulling the cotton yarn back through the jute brings the loops to the back (dark areas) and anchors them there. No latexing is necessary.



LITTLE GIANT RO-LOADER

LIFT TRUCK ATTACHMENT

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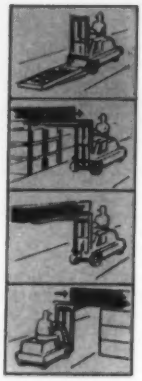
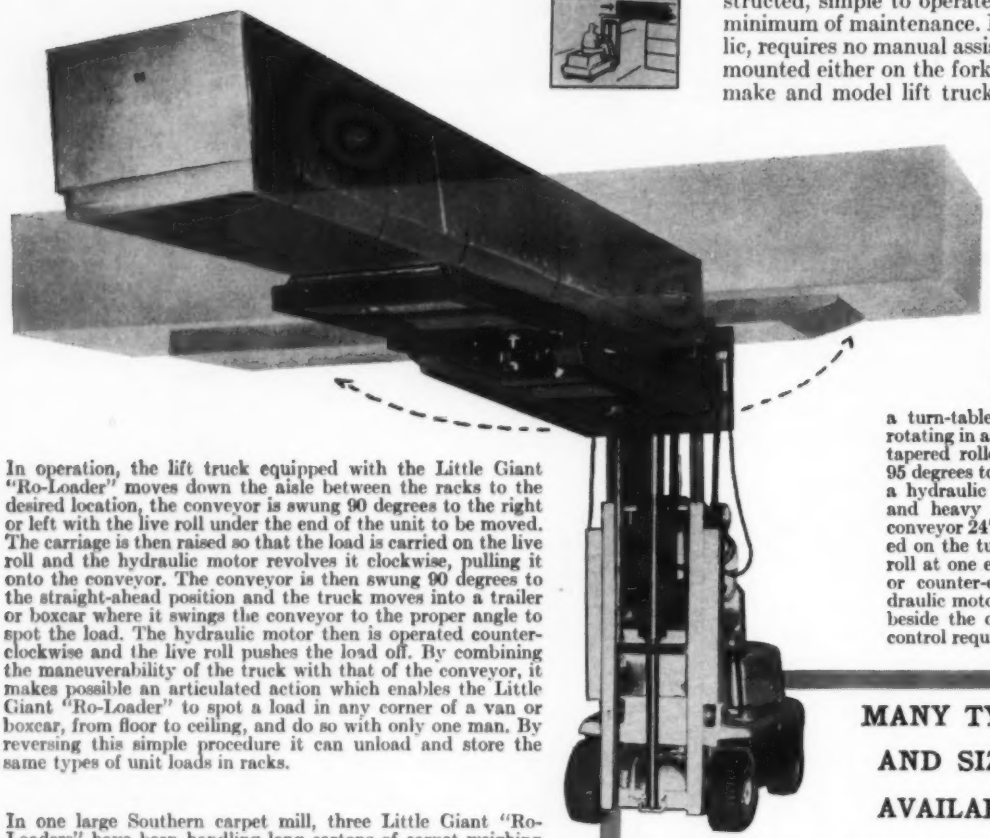


The Little Giant "Ro-Loader" is a revolutionary new lift truck attachment for handling long unit loads. It is ruggedly constructed, simple to operate and requires the minimum of maintenance. It is fully hydraulic, requires no manual assistance and can be mounted either on the forks or apron of any make and model lift truck of adequate capacity. It can be furnished to handle any length and weight of unit load you may require.



The Little Giant "Ro-Loader" consists of a heavy support weldment, either fitted to the forks or the apron; a turn-table on the end of it, rotating in a heavy duty Timken tapered roller bearing actuated 95 degrees to the right or left by a hydraulic cylinder on a rack and heavy ring gear; a roller conveyor 24" or 48" wide mounted on the turn-table with a live roll at one end driven clockwise or counter-clockwise by a hydraulic motor. A four-way valve beside the operator is the only control required.

In operation, the lift truck equipped with the Little Giant "Ro-Loader" moves down the aisle between the racks to the desired location, the conveyor is swung 90 degrees to the right or left with the live roll under the end of the unit to be moved. The carriage is then raised so that the load is carried on the live roll and the hydraulic motor revolves it clockwise, pulling it onto the conveyor. The conveyor is then swung 90 degrees to the straight-ahead position and the truck moves into a trailer or boxcar where it swings the conveyor to the proper angle to spot the load. The hydraulic motor then is operated counter-clockwise and the live roll pushes the load off. By combining the maneuverability of the truck with that of the conveyor, it makes possible an articulated action which enables the Little Giant "Ro-Loader" to spot a load in any corner of a van or boxcar, from floor to ceiling, and do so with only one man. By reversing this simple procedure it can unload and store the same types of unit loads in racks.

In one large Southern carpet mill, three Little Giant "Ro-Loaders" have been handling long cartons of carpet weighing up to 1000 # from the packing department, to racks, to trucks and boxcars with one man per unit. Formerly, eleven men were required. The net cash savings were sufficient to defray the total cost of three 4000 # lift trucks and "Ro-Loader" units within one year. Three other units in a large Eastern carpet mill are doing a similar job.

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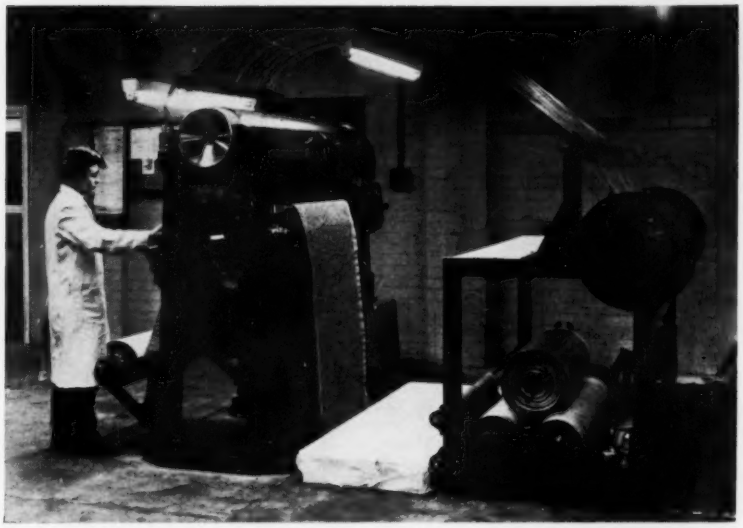
is far faster than by the traditional techniques, although it does not come near to tufted carpet production. The firm states that the fabric made on the looms is a substitute moquette; but as it comes off the machine it is an extremely unstable material and has to be backed with a latex compound very quickly, otherwise there is a tendency for the loops of pile yarn to be pulled out of a row.

To convert a traditional loom, assuming all the parts are ready, would, it is estimated, take a skilled fixer about a week. The modified machine would then be ready to produce an excellent quality carpeting material using a long staple rayon yarn for the pile and a cotton and paper warp yarn combination for the back with a jute filling.

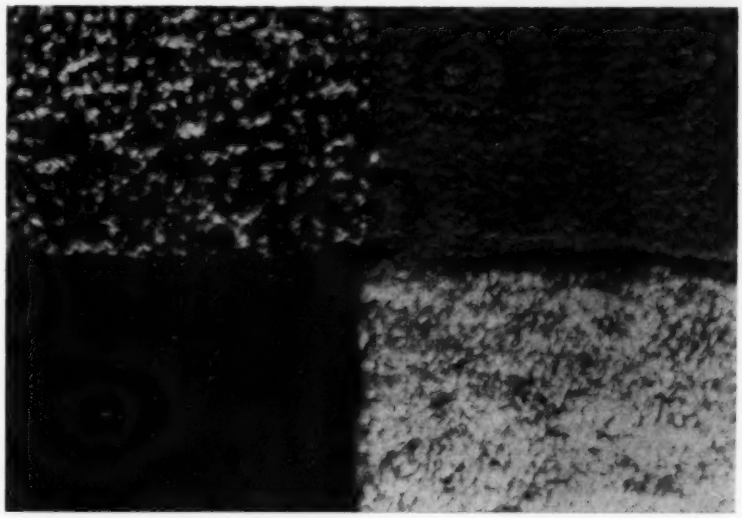
Intensive research was undertaken to find the best pile yarn for this type of carpet, and today the firm is favoring a jute-system-spun, long staple rayon pile yarn which is left in looped form to give maximum resilience. By folding one end of matt yarn with an end of bright, the firm is making a plain color loop pile carpet which is extremely attractive. All products are being marketed under the brand Kurlweev, and the latest development is a combination rayon and acetate yarn which is cross-dyed.

All carpeting is woven in the grey and piece dyed later. The looms run with the jute filling at 120 picks per minute, and with 6 ppi this gives a production of 1 ft/min. Although much less than a tufting machine it is well above the rates of either Axminster or Wilton looms. A feature stressed by the manufacturer is that the looms are not very expensive to buy and modify. At present they are restricted to 54-in widths, but plans are in hand to double the width.

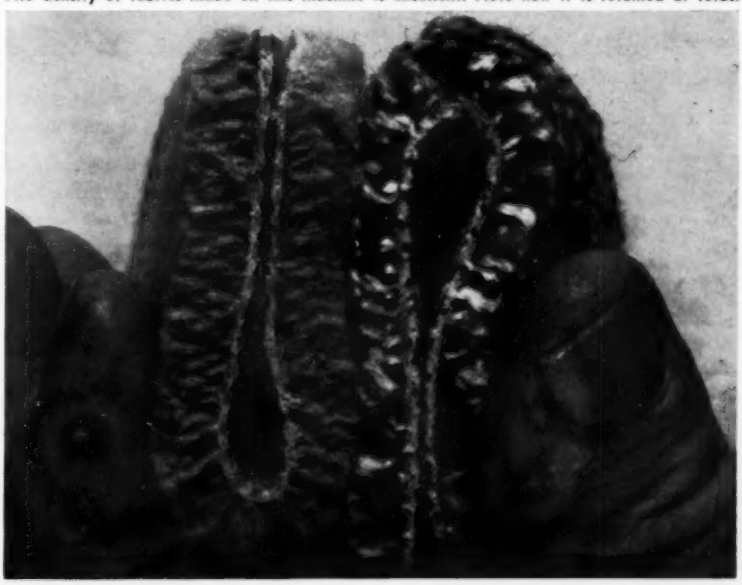
Simulated Hand Tufting. Another machine which is now said to be running commercially, although details about it have not been released, is said to work on a principle very akin to the tufting machine, although the rate of

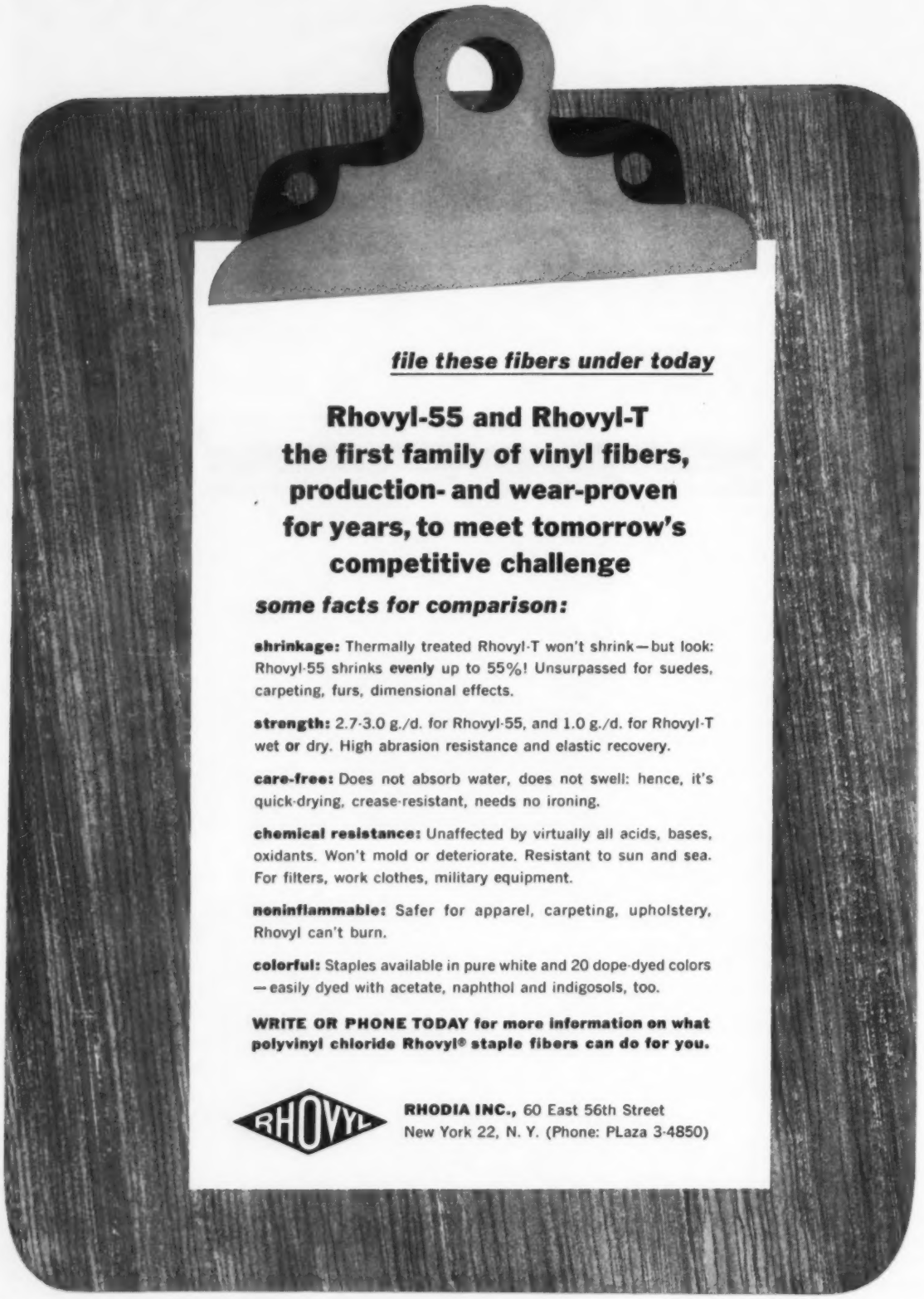


This 1/8" gauge machine is made in loop- or cut-pile models, in widths from 35" to 223", and it may be fitted with beams or creels. Some of its products are in the picture below.



Pile density of fabrics made on this machine is excellent. Note how it is retained at folds.





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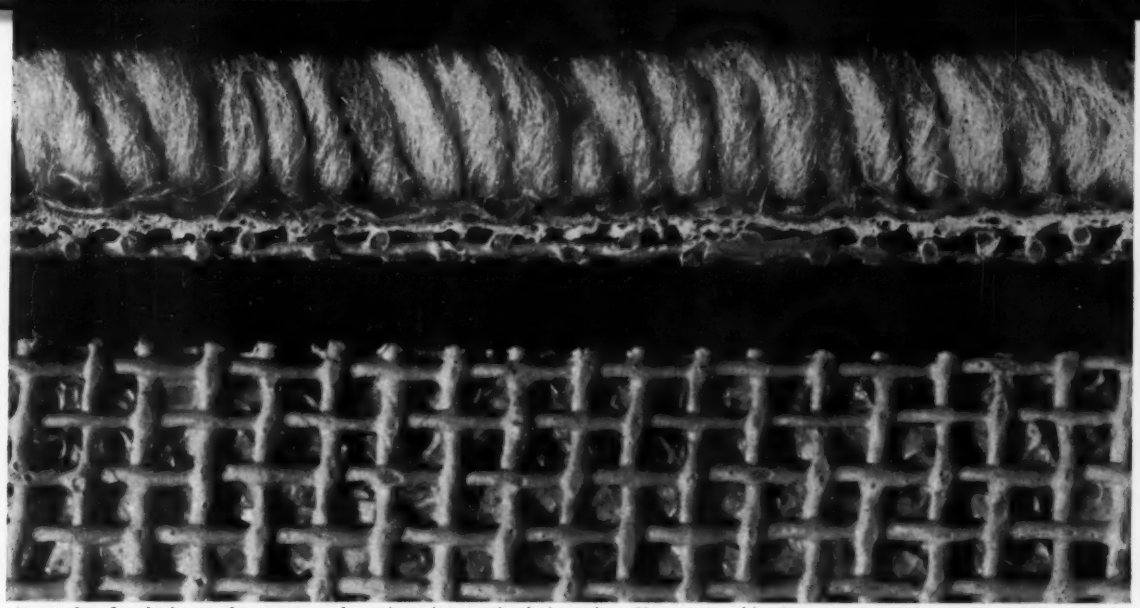


A sample of a high-cut-pile carpet made with 70/30 Acrilan/nylon pile. The scrim adds dimensional stability and nonskid property.

production is reported to be well below that of a tufting unit.

A hessian [jute or hemp burlap] backing is used for this machine. A series of needles, with eyes, are threaded up to take a strong cotton yarn through the backing to the face side of the hessian. Here an end of pile yarn —the builder favors wool—is inserted through the loop formed by needle and cotton thread. As the needle withdraws, it pulls the pile yarn through to the back of the fabric.

The technique makes a good carpet in which the pile yarn is locked in position by the cotton thread which acts as part of the tufting sequence and must therefore be both strong and even.

The carpet made in this way is similar in many ways to a Wilton, and the machine builders are anxious that it be used only for making superior quality products.

Although it requires a strong, even, cotton yarn to pull the wool tufts into the body of the carpet, the cost of this can be offset against conventional tufting in that no latexing is required to finish off the final product. The samples so far seen of this method of manufacture are characterized by a thick, dense, even pile, and pile anchorage is exceptionally good.

Cut pile is made on the machine which would appear, from the scant information so far released about it, to have somewhat less patterning possibilities than a tufting machine. It is much faster producing than conventional looms, but nowhere near as fast as a tufting machine. However, the builders point out that the type of carpet it is to produce is not intended to be cheap.

Pile Wires—Almost. Another interesting invention, again about which little is yet known, is that of Thomas Brandon. This machine winds yarn for the pile of the intended carpet, onto metal rods. When fully wound the rods are dropped into a hopper from which they are fed onto a conveyor belt.

In the next stage the rods are combined with hessian backing, by means of latex, and eventually the rods are cut away from the resultant carpet, to leave a cut pile fabric.

The process, it will be noted, hinges around the machine that winds the yarn onto the rods and the hopper which supplies them to the conveyor system for combining with the hessian.

Should anything stop winding, such as a broken end, the rest of the carpet machine continues producing, as there is a reservoir of wound rods maintained in the hopper.

This presupposes that rod winding takes place at a rate exceeding the production speed of the machine.

As with the other method mentioned above, Mr. Brandon's method appears to be restricted in its patterning possibilities at the present time; and it is evident that the trade will only be able to accept certain quantities of plain carpets, the main demand undoubtedly being for patterned styles.

Speed and Patterning Demanded. The process that will win the highest acceptance will be that which can give the best patterning possibilities and the highest rate of production, and it is here that the tufted carpet machine builders are in such a strong position. Already British tufted carpet manufacturers are showing great interest in the combined cut- and loop-pile single needle control machine, and one is shortly to be delivered to a British firm for making patterned scatter rugs. This young firm is producing some extremely high quality products and it is noteworthy that they have carefully selected their color range, with the result that they have found a promising market in the U. S. and Canada.

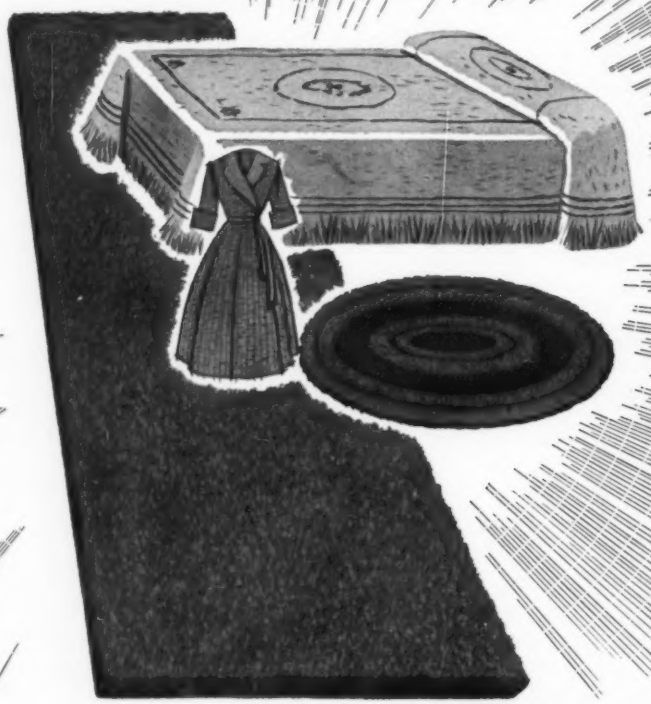
British tufters are competing strongly against traditional carpet manufacturers, and the general range of products now coming from their plants is very imaginative.

A luxurious Acrilan/nylon 70/30 blend deep-pile, cut-pile carpet called Accolade, has received

(Continued on page 128)

TUFTED TEXTILES

. . . have contributed immeasurably to the economic surge of the South! In 1956 alone, tufted carpeting, and other products worth over $267 million were shipped by Southeastern manufacturers to markets here and abroad. *To produce over 90% of the nation's tufted products,* these manufacturers used over 251 million pounds of yarn and fabric, most of which was produced in the South. • The growth of the tufted textile industry has added impetus to the growth and development of the area. And the Trust Company of Georgia, with a full and complete FACTORING DEPARTMENT, has been pleased to participate in this growth as FACTOR for numerous textile producers. If your operation requires this specialized service, contact us. The Trust Company will gladly work with you and your bank in Dixie's "Forward March of Progress."



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The LIGHT approach to patterning

by J. O. Erwin
and Wallace Hammel, Jr.
Cobble Bros. Machinery Co.

A NEW pattern control device operated by a beam of light is now available for use on the Cobble Single End Scroll Type Pattern Attachment. One hundred and twenty small rectangular silicon solar cells convert this beam of light into electrical energy.

The important components in the active part of the solar cell are the silicon material and a p-n junction that is now used in rectifiers, transistors, and other semiconducting devices. The term p-n junction stands for the boundry layer between p-type and n-type semiconducting material.

When light falls on the p-n junction, photons having sufficient energy to break valence bonds in the crystal create hole electron pairs. If the photon is absorbed near the junction, the hole electron pairs will diffuse into the junction region.

Then the junction field will cause them to separate so the holes flow into the n-type material. This builds up an external voltage in the device and causes current to flow through a load. The light acts as a current generator.

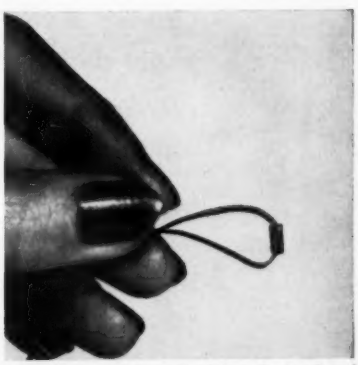
Response time for the cell is 20 micro-seconds or less, which permits instantaneous control. The replacement problem is virtually eliminated, due to a permanent life-time diffused p-n junction.

A very low light source is used on the control, and from this light source the solar cell generates a current of approximately 60 micro-amperes. This small amount of current is then fed into a n-p-n type transistor which amplifies the current up to about 2 milliamperes. This is enough current to trigger a p-n-p type switching transistor which operates a mercury wetted relay and in turn controls the electromagnetic clutches.

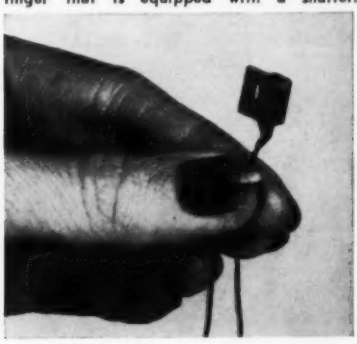
Solves Lint Problem. In the past, some trouble has been experienced when using an open type contact because of the lint and fly present around tufting machines. The lint tends to collect on the contactor, and it either arcs across the points or com-

(Continued on page 124)

Exclusive



The silicon solar cell (above) is fitted into a holder as shown in the bottom photograph. This combination (left) is fitted into the single yarn feed roll finger that is equipped with a shutter.



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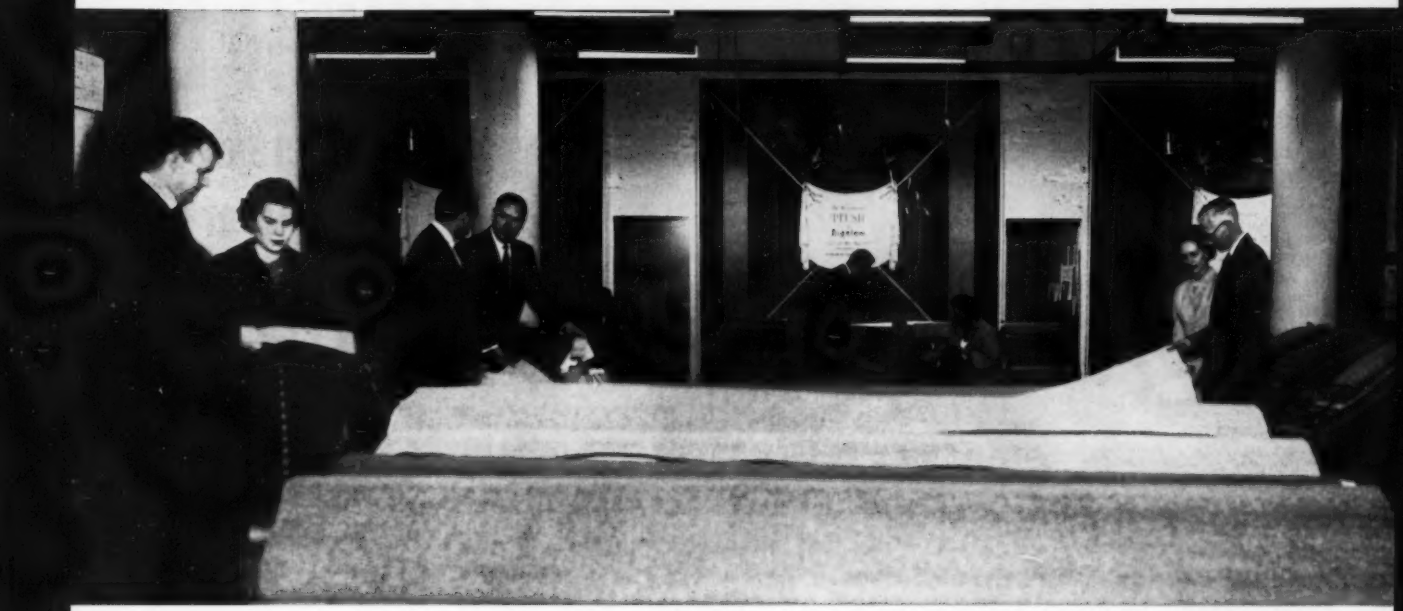


A retailer speaks

by Leonard Meltz
Divisional merchandise manager
Rich's, Inc.

Exclusive

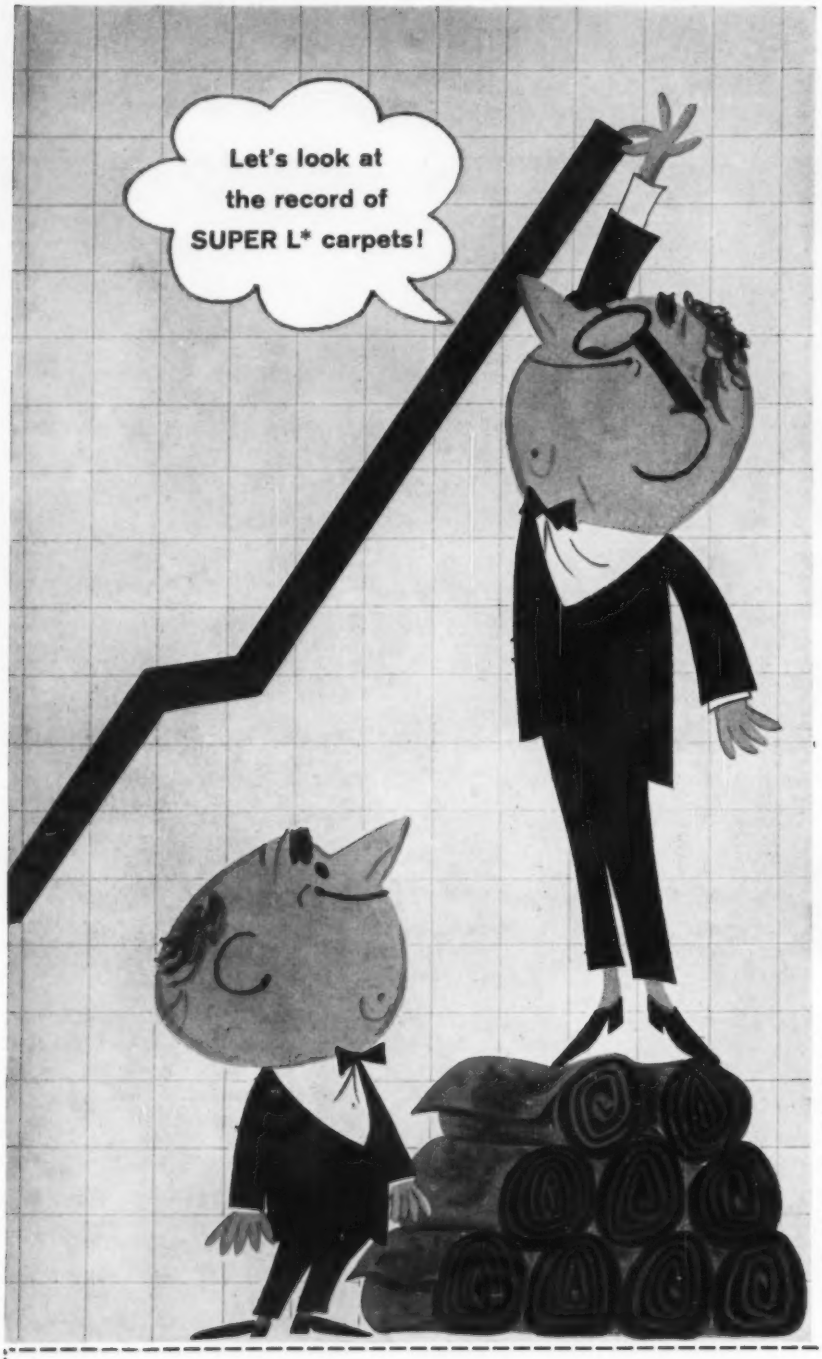
SINCE I was a buyer at the time tufted broadloom carpeting was introduced to the public, and have been on the "ground floor" for more than a decade, I feel I am somewhat qualified (to me there are no "experts" on tufted carpets, only "professionals") to go on record with a few statements relative to the tufted carpet industry. While gathering a measure of experience I have collected more than a passing interest in the development of tufteds.

Retailer's Vista. As a retailer, I enjoy the dubious distinction of being in the middle between the manufacturer and the customer. Since we retailers get the first crack at public opinion, or "customer preference" if you please, we are very much aware of his tastes and do everything possible to guide this "preference"—to assist in protecting his well being, in raising his living standards, and in educating him to assume a more realistic view of manufacturers' production limitations.

Relative to our manufacturer contacts, we try to pass along to them all immediate information we have, opinions garnered from our associations with customers, plus our own projected ideas, so that manufacturers may be able to work well in advance of market demands—we detect trends and other changes that can materially assist the manufacturers in planning merchandise. If we function properly, we can be of considerable assistance in the correction of any faults due to construction, fiber, or color before they reach serious proportions.

Tufteds Increase in Acceptability. On the increasing acceptability of tufted carpets, let me say here and now that I sincerely believe that in the customer's mind there is no difference between a tufted carpet and a woven carpet, or a knitted carpet, or any other construction you wish to apply. This, I know, is controversial, and from a technical point of view you should probably stop reading this article right now.

However, to elaborate I am sitting in an office carpeted with a beautiful floor covering. It is dense, lush, of a type pleasing to me, and is an excellent color. From my position in this chair



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(and I have just measured this to be sure) I am four feet above this carpet, and I cannot tell whether it is tufted, woven, or knitted. And, frankly, I don't particularly care.

That, I am quite sure, is the reaction of most customers. They are buying floor covering to serve many purposes in their homes, and they will look for a lot of factors before they decide. The

"...Will look For a lot of Factors"

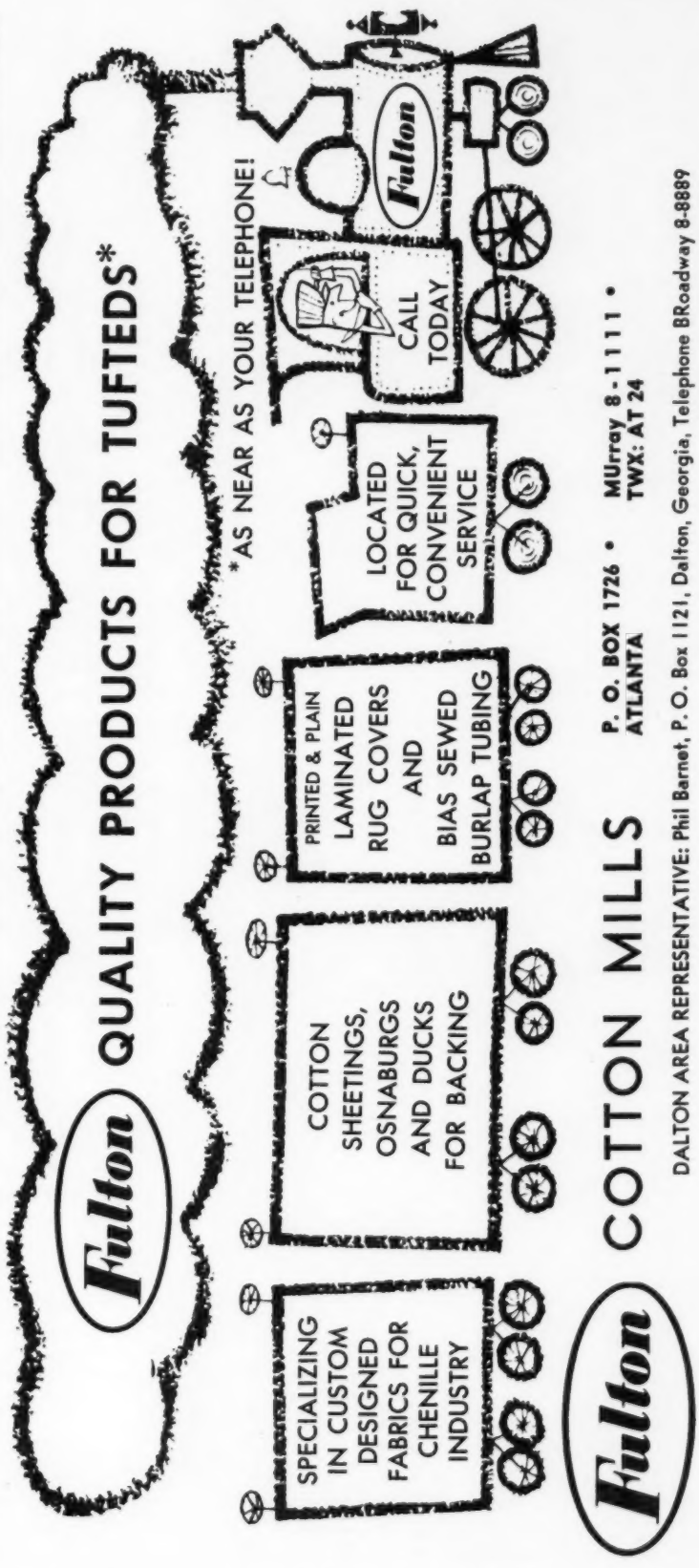
"weaving" process will be far down their list of "musts" in making a decision.

NOW, let us look at some factors that all of us must consider and apply them to carpets that are manufactured on a tufting machine:

Soiling properties—Is this not a condition relating directly to the type of fiber, the dyeing, density of yarn, etc.? This can and should be controlled the same as it is for any carpet system.

Cleaning—The only limitation on cleaning a tufted carpet would apply to those areas listed above and also to the type of backing utilized. We now have examples that nylon yarn moisture retention is considerably different from the backing yarn or jute, cotton, kraftcord, etc., and this certainly must be considered. The shrinking or buckling aspects must be taken into account and carefully scrutinized on tufted carpets, as this is a manufacturing process which definitely puts tufting in a different category from other carpets.

Sizes—Tufting processes have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much more flexibility as to width and length of rolls.

Colors—This is my favorite subject. Here is where tufted carpeting originally excelled and was made so important. The color potential alone is one of the main factors in the great growth of this carpet manufacturing process. You have made customers color conscious, and you have made them think immediately of buying new floor covering because of the availability of so many colors. Please keep this color factor in mind as one of the biggest assets of the tufted industry. Much more could be written and spoken in this respect. I hope I have made a point.

Designs—With the rapid improvements of the tufting machine, design is now practically unlimited and another great area is open to you.

Fibers—With minor exceptions the tufting process can employ all the fibers used on any other type loom. This is a technical question that I am not qualified to discuss at length, but as a layman I do know that it is dependent on tensile strength, loom tension, cutting blades, shearing, and dyeing problems. All of these factors constitute the ultimate appearance and durability of the finished product.

Tufting should not be an excuse for limitations with respect to appearance or durability. If a particular fiber or design or style cannot be produced on a tufting machine to give satisfactory and

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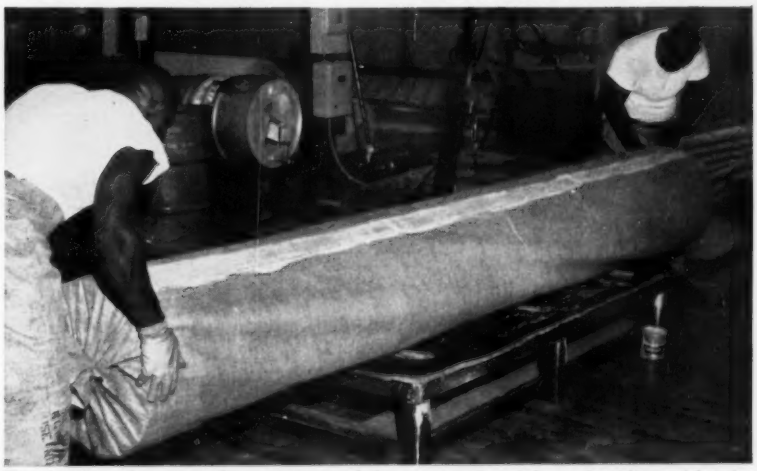
Just roll-wrap in Bemis Laminated Covers, the snug, non-telescoping, waterproof covers.



Then brush on the cement for a waterproof closure... and seal the ends with a quick twist.

Bemis ROL-RAP Laminated Carpet Covers give you major savings in labor, time and storage space. And the flat, cemented seams, which keep out dirt and water, are stronger (by tensile strength test) than conventional seams. Write for *complete* information.

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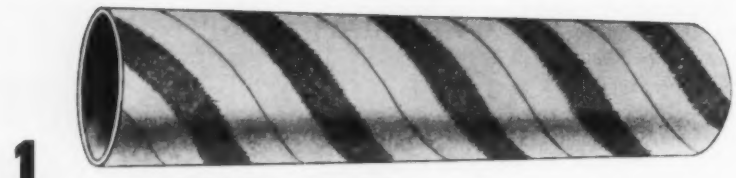
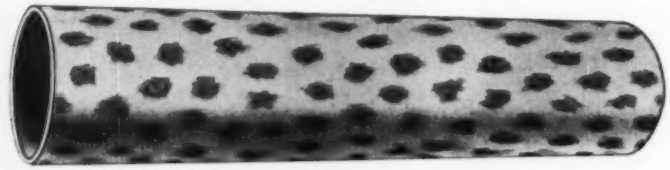
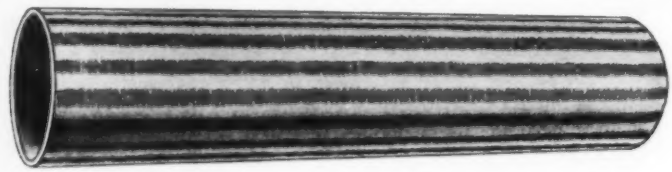


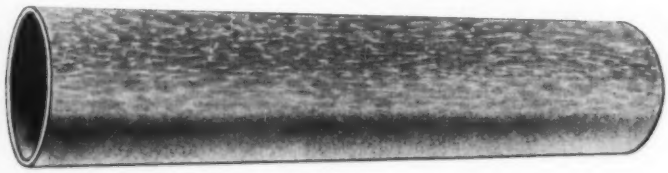
1 SPIRAL BANDS



2 RANDOM SPOTS



3 STRIPS



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beautiful appearance, it should not be manufactured. I particularly implore you likewise not to manufacture any carpets to meet a competitive situation or a sales potential if you honestly do not feel the carpet will be durable. This gives tufting, as such, a bad name. It also gives woven or any other process a bad name. Why do it?

What the Customer Expects in a Tufted Carpet. I ask you, "What should a customer expect in any carpet?" Certainly she is not buying complaints. The question is very basic and simple to the point that we often make it complicated and confusing. Again, regardless of the weave, the customer is buying a covering for her floor.

She is buying this covering for various reasons, depending on her particular condition. Mainly, however, this purchase is made to satisfy an urge to live better, to add color, quiet, decor, and texture to the home, to secure a wall-to-wall size to make an area "larger," to buy in a size that will lend accent to a given area, or simply to cover a bad floor.

I am very much of the opinion that many of us, manufacturers and retailers alike, have long since forgotten the main reasons why we originally told customers they should buy tufted carpets.

Let us review some of these reasons that were very important only five to ten years ago:

1. A wide multi-needle sewing machine was available that was very adaptable to the use of rayon yarns. 2. Rayon was in fairly good supply and cost less than wool yarns, making it possible for the finished carpet in tufted rayon of a quality similar to woven wool, to retail for approximately $2 or $3 per yard less. 3. Color! color! color! This could probably be first, but we must follow the sequence of events. Color makes all these other things very important, and we immediately "blasted" to the consumer that she could buy any color at a very nominal price. 4. Width—shortly after the advent of the nine-foot loom the twelve and fifteen-foot models appeared. Now it was possible for our customer to get any color in any width, in any density, cut or loop

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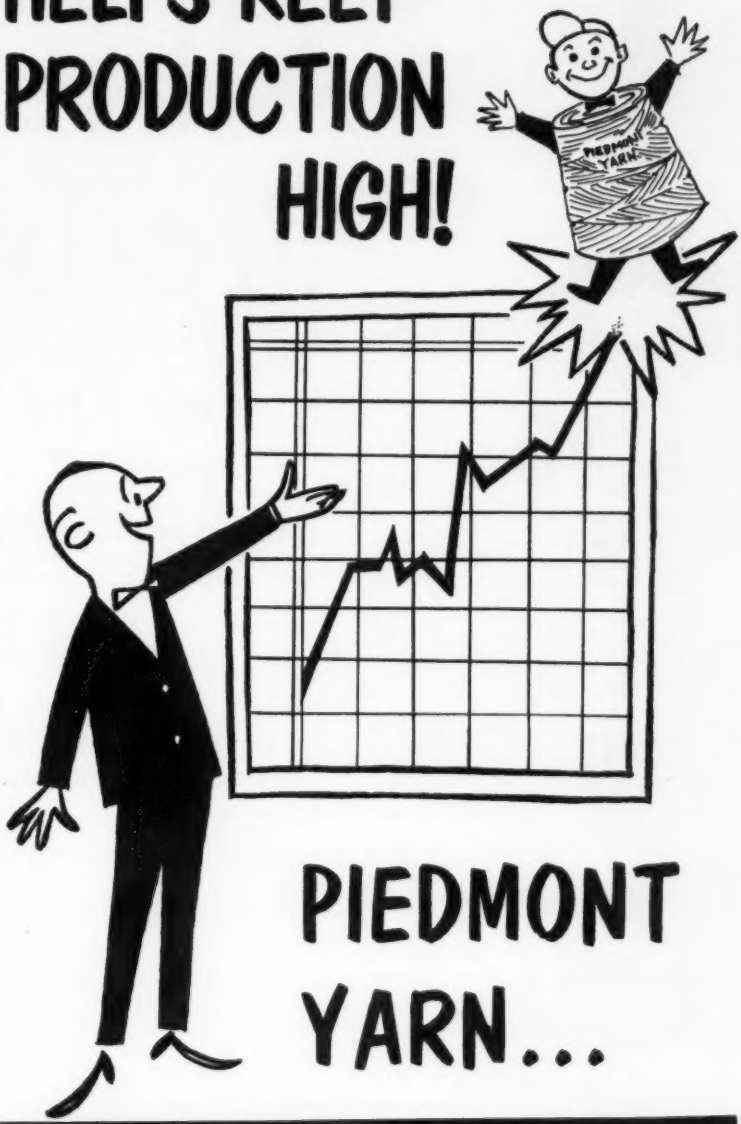

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pile, at real budget prices with a very short waiting period.

This was wonderful! A new era

for the carpet industry! However, were we not a bit too aggressive? Did we not make too many rash promises (over and above the possibilities of the yarn, weave, and dyestuffs), considering especially our limited experience with this new "weaving" process?

I like the Lindberg approach of using "We." The manufacturers and retailers were in this together. Both were responsible for getting the business and likewise were responsible for the ensuing complaints. The reasons for this history is to answer the question, "Did the customer expect complaints?" Of course not; she wanted exactly what we told her she was getting. We told her to expect too much. This all adds up to the fact that we should attempt at all times to keep the stigma of complaints divorced from tufted carpets.

What the Manufacturer Can Give in Tufted Carpets. Before writing this, I made another trip to a tufted mill, after the Chicago market show of January, 1959. This industry changes rapidly, and I wanted to be as up to date as possible. I not only saw what the manufacturer has given and has added within the last few months, but I also saw the entire field that lies before the carpet manufacturer.

It is necessary to take a good look at the potential and decide upon the objectives of tufted carpet manufacturers. Their goals should be the same as for the entire floor covering industry—to sell more carpets.

When one examines the volumes of figures prepared by financial, accounting, and consulting firms on the distribution of carpeting and realizes that the square yards used per family in this country has not materially changed over several decades, this objective becomes more clearly defined.

Can we overlook the amazing performance of our automobile

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'Different' styling?

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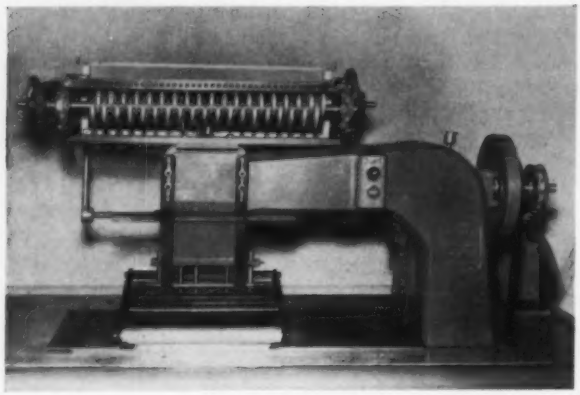

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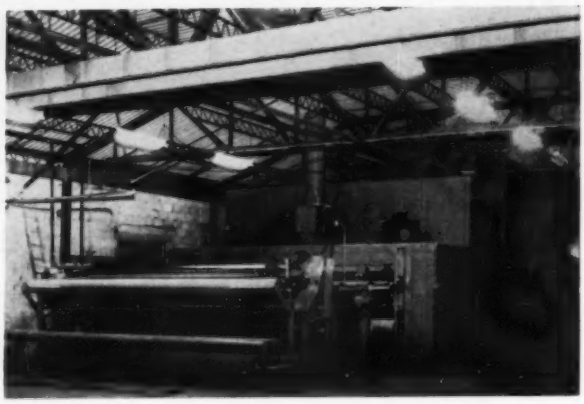

★ ★ ★ ★ ★ ★ ★ ★ ★

Curing Oven With Built-in Tenter!

This unusually versatile operation is a 60 foot, 3 pass, gas fired, warm air curing oven. Carpeting is run on the tenter on the first & second passes. The third pass is on rolls.

A conveyor belt is also installed on the first pass so that material may be run through the oven without the use of the tenter.

All Dalton systems are engineered to your individual needs, heavy duty construction throughout. A survey by our trained engineering staff with recommendations for improving your efficiency will be made at no obligation.

The Complete Line of DALTON Equipment

- **INDUSTRIAL DRYERS**— Steam, Infra-Red, Gas
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Equipment engineered & designed to fit your specific needs. Manufacturers of equipment for the textile industry since 1936. Write for free brochure today!

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DALTON SHEET METAL COMPANY, INC.

439 SOUTH McCAMY STREET **DALTON, GEORGIA**

manufacturers having customers buy a car every year or two? They have made drivers want two cars in every garage. I recommend we take a leaf out of their book and try to merchandise our product accordingly.

This all starts with the manufacturer. These are the boys who have to make the carpets containing the essentials needed to make Madame Customer's "feet tickle" until she walks on them. They must want to make her restyle her rooms, starting with the carpet. But this must all be done at an attractive price.

I am not concerned with whether this price is high or low. It must represent good value and must meet the demands of the majority of people and absolutely be quality merchandise for its price range.

The more inferior, low quality, sub-par merchandise that is manufactured to meet a certain group of retailers' competitive needs, the more the stigma of low quality will settle upon tufted manufacturers. For goodness sake, whatever you make, make it right.

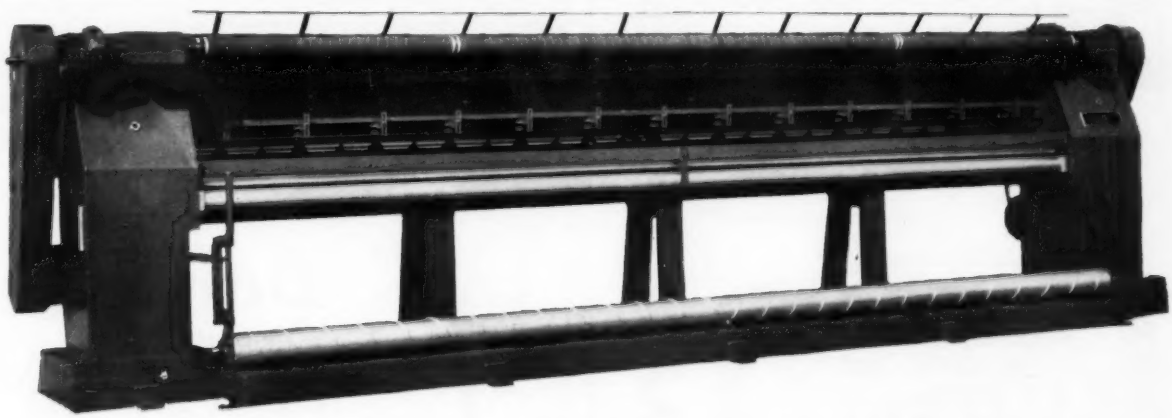
The tufted manufacturer has unlimited possibilities to get all

the information necessary to manufacture carpets with "customer preference" in mind. Whether the trend be deep, plush pile, high, low, plain loop, or whatever, make the right item at the right time with good styling and color sense at the price to meet the market you are after.

All these statements and analogies could be stated another way: "What the Manufacturer Cannot and Should Not Give." Do not be ramrodded or pushed into making items that will not do credit to your firm and your industry. I knew I eventually would have to reach the point of admitting that some retailers are responsible for some of the manufacturing evils, just as I am proud to claim that retailers are responsible for some of the ideas and ultimate achievements. There are good and bad in every group.

Most retailers, I am sure you will agree, are building for the future and are therefore very eager to assist manufacturers in improving their product and getting new items for increasing their business. Each retailer's organization is individual and consequently cannot be controlled by the group. The same is true of manufacturers.

Each of us in his respective position cannot correct the wrong doings of others. If my firm purchases inferior carpet from one manufacturer, this does not give



FOR CONTINUOUS CARPETING IN WIDTHS TO 18', INVESTIGATE THIS

This full-width carpet machine incorporates, frictionless bearings, forced feed integral oil system and high horsepower.

Machines also feature positive infinitely variable stitch rate and variable pile height, readily accessible cutting and looping units. The looping unit is so constructed that loop pile machines can be serviced from above the back bed plate, this means operators don't have to get underneath a Southern loop machine.

Machine sewing capacity is engineered for standard carpet widths. This along with efficient production facilities can result in an attractive price saving for your plant.

Be sure to see Southern before you buy!

Full-width
CARPET
Machine

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All types dyeing
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"THERE IS NO SUBSTITUTE FOR EXPERIENCE"

NEMO AUTOMATIC CUTTING MACHINE ALWAYS ACCURATE

Cuts carpets or rugs automatically — multiple narrow widths, or 10 feet in width.

. . . CHANGE LENGTH OF CUT IN 5 SECONDS AND WHERE DESIRED, ALL EDGES MAY BE CUT WITH A "BEVEL".

Cut samples on the same machine!
Each sample delivered with all four edges beveled, and at high speed.

Do you want more information?
Write or call

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The **"Bartuft"**
single stage process
Carpet Machine*

- Requires no fabric backing
- Produces complete carpet without further processing
- Tufts all type yarns
- Very high efficiency
- Low capital and maintenance costs

**P.V.C. Plastic Backing

*Manufactured by Radcliff Engineering Co. and Patented in U. S. and World Wide

International Sales Management Co.
123 N. Poplar St., Charlotte 2, N. C.

me the right to condemn all manufacturers.

The point I am trying to make is for you not to let a certain few retailers influence your thinking in the direction that will eventually impede your progress and reflect unjustly on the entire industry.

This is a lot of beating around the bush to say that the industry has been guilty of pushing out carpet at ridiculously low retail figures and making equally ridiculous claims regarding the value of the product. As water seeks its own level, so it is with fiber and with construction methods. It is just as easy to sell a given fiber in a particular construction at $3, or even $4, per square yard by advising the customer of its limitations as it is to claim it is a cure-all for the floor covering industry.

I am sure we all realize by this time that you can sell just as much, in the long run of course, by being truthful, positive, and realistic, as you can by making fabulous claims. Barnum could have had today's carpet customer in mind when he made his now-famous quote "There's a sucker born

every minute." Furthermore, judging from the way the customer has so often been "milked," the quote "There's a sucker born every minute and two to take him," probably prepared the way for the tufted carpet industry.

This need not be true when we realize that all of these figures also inform us that it takes a customer as long as 18 to 24 months to make up her mind. Therefore, she must be shopping and is bound to hit one reliable retailer who has merchandise that will give her the best value and who will take the time to consider her problem and give her the best advice.

In the final analysis the burden is on the retailer. Yet, is it not on you also? It is a two-way street. Many manufacturers claim partnership with retailers. If this theory were actually practiced, then you as manufacturers could make and sell the best carpets from your wonderful tufting machines.

You fellows make it right, educate the retailers to do the proper selling, advertising, and publicity job for the consumer, and you will beat these old statistics of two square yards of carpet per home.

LEE'S THREE SIGNS OF SERVICE TO TUFTED TEXTILES

LEE'S

TEXTILE INDUSTRIES has been printed at the LEE plant for 45 years

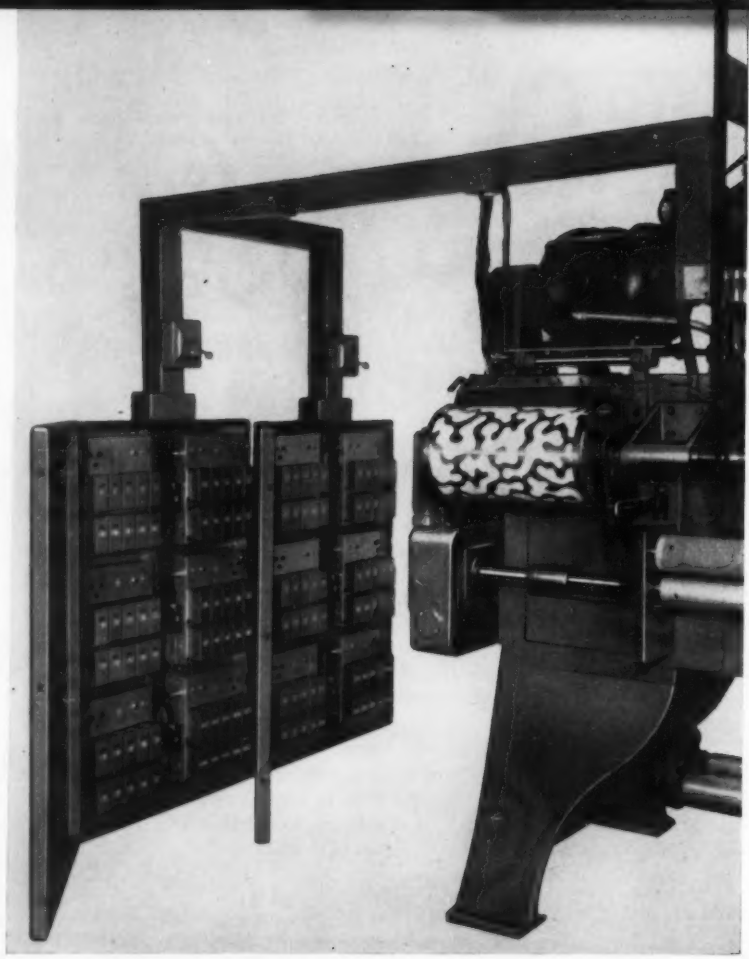
116 East Crawford Street, Dalton, Ga. — Phone BR 8-1201

Pattern control

(from page 109)

pletely insulates one side from the other. But now, by using the solar cells as a pattern take off signaling device, the last mechanical switching or contact in the whole electrical system has been eliminated.

The specific merits of the solar cells as a pattern take off mechanism may be pointed out by giving



A 216" single-end scroll machine fitted with the pattern device. Note control cabinets and the drum mounted under the finger bar.

the operation sequence of the Single End Scroll Pattern Attachment as follows: A series of individual yarn feed rolls (120) are each driven at two different speeds by two electro-magnetic clutches mounted on the same drive shaft.

The clutches are running at an

M-I-L-E-S

of top quality
WUNDA WEVE CARPET
have passed through
these Tandem
Birch Finishing
Ranges.
A quality product
requires
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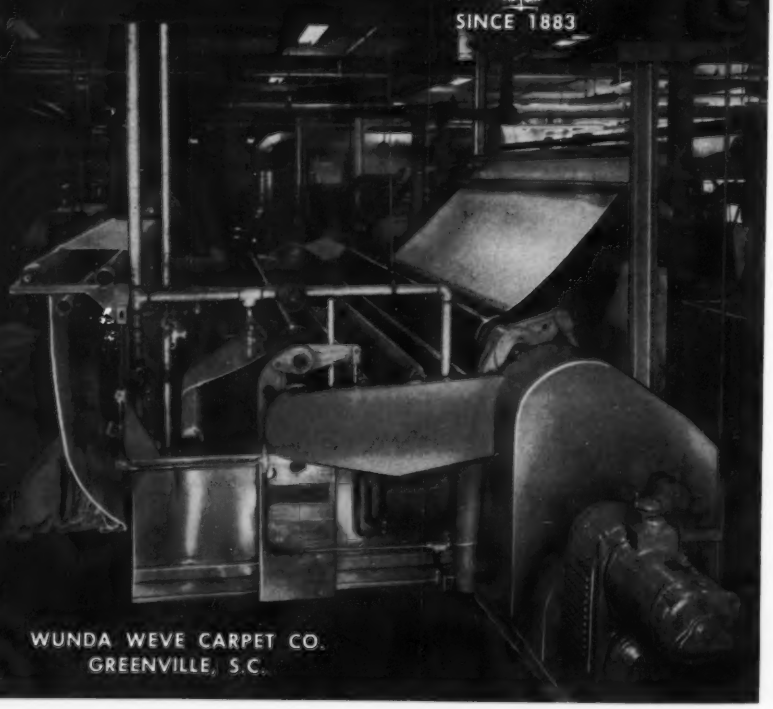

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the finest Tufted Carpets in the world are processed with

PROCTOR EQUIPMENT at some stage

in their manufacture

Millions of yards of Tufted Carpet are processed yearly on PROCTOR Equipment from fiber to floor covering.

We, at Proctor, continue to serve your industry with constantly improved developments in opening, blending, carding, latex application, tentering, drying and scrim application. Our policy is to satisfy the needs of the Tufted Carpet Mill and the yarn mills who supply you.

Are you planning to increase your production or modernize your plant? Are you, too, planning to use worsted type yarn so easy to tuft?

Be sure to call on Proctor & Schwartz—leaders in the development of synthetic carding equipment and the new short system of yarn production for tufted carpets.

Proctor engineers will gladly help you with your problems, from fiber to floor covering.

Write for your copy of the Proctor Synthetic Card story "Short Cut to Fine Yarn."

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approximate 2 to 1 speed differential, and the speed of each roll is selectively controlled by a pattern drum that carries the pattern on a shell. This shell is very easy to change, and the different patterns are transmitted electrically by means of a shutter mechanism that will block light from the solar cell or permits light to strike it.

The attachment is normally supplied with the yarn feed rolls running at the slow speed or low pile height, which means that the slow speed clutch is electrically engaged. When the pattern calls for it, the speed of each roll, individually or collectively, is increased by switching the electrical current to the fast running clutch; thereby speeding up the roll and delivering more yarn to the needle to produce high nap.

New System Built for Operator Convenience. The electrical control system has been made into modular units, allowing easy servicing should the need arise, and each yarn feed roll unit is controlled by one plug-in module. The components in the plug-in module are a silicon rectifier for both the 90-volt clutch circuit and the 20-volt relay circuit, a power transistor, and a mercury wetted contact relay.

Another feature of the Single End Scroll electrical system is the way in which the modular plug-in units are divided to have more versatility. Two separate control cabinets are used. One cabinet houses the units for the top row of yarn feed rolls, and the other cabinet houses the units for the bottom row of yarn feed rolls.

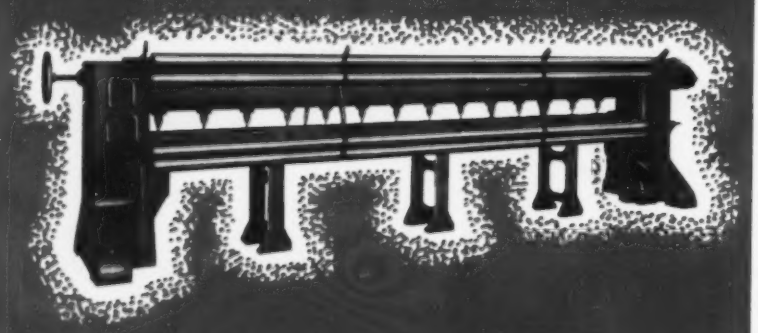
Each cabinet is divided into 6 separate plug-in receiving units, each receiver controlling 10 plug-in units or, in other words, 10 yarn feed roll units. In addition to an on-off control switch for each of the plug-in receivers, there is a three-position switch for controlling the independent operation of the 10 units. Consequently, the speed of 10 roll units can be set for running at a continuous slow speed, continuous fast speed, or at the speed required by the pattern.

How It Works. The pattern is put on a phenolic or aluminum drum in the form of an adhesive plastic tape 1/16″ thick. The drum is first completely covered with the tape, and a paper pattern is placed around its circumference as a guide to cutting the desired pattern. Nothing more than a pen knife is needed to cut out the desired portions of the tape, and by cutting out selected areas for each control finger the pattern is formed.

The control fingers are actuated by the difference in height between the un-cut and cut-out portions of the plastic tape. This difference in height causes the finger to raise and lower a shutter in front of the solar cell, thereby blocking light from the cell or allowing it to strike the cell's surface.

When the light is blocked from

TEN-TEX
TUFTING MACHINES



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Single Needle to 72 Needles

YARDAGE TUFTING MACHINES
30" to 216" in Width

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FR-S 151—High tensile strength, exceptional loading capacity. High modulus with excellent heat and light resistance. 51% solids.

FR-S 174—Styrene-butadiene resin latex. An excellent stiffening agent providing increased hand and fine tear strength. 50% solids.

FR-S 176—A new low-cost latex, highly resistant to ultra-violet light, heat aging and gas fading. Stable to mechanical action and to compounding ingredients. 46% solids.

FR-S 110—For premium back-sizing applications requiring extra light color. Will not discolor conventional dyes. 50% solids.

FR-S 2105—This high-solids latex combines high tensile strength with low temperature flexibility. Offers excellent *hand* with high pigment loading capacities. 62% solids.

A Firestone FR-S latex for every carpet-backing requirement! These five product-specialized, stable-priced polymers are built to assure the production of stronger, longer-wearing, more attractive and saleable tufted carpeting for less cost. Individual tufts lock into place to stay—permanently welded to backing for new, long life. Rugs lie flatter, look better with shrinking, puckering or raveling at edges and seams gone for good. Get together with your Firestone Technical Service representative this week. Call today or write for details, FIRESTONE SYNTHETIC RUBBER AND LATEX COMPANY, Akron 1, Ohio.

Firestone

BETTER RUBBER FROM START TO FINISH

Copyright 1959, The Firestone Tire & Rubber Co., Akron, Ohio

The title page for the Tufted Section was reproduced from a rug tufted by Cobble Bros. on one of their cut/loop pile machines. The date was formed by tufting a background of low loop pile and framing the areas with high cut pile.

the cell the respective yarn feed roll runs at the slow rate, delivering a small amount of yarn to make low nap. When the shutter is raised, or the finger is on the high portion of the pattern, light is permitted to strike the cell. This generates the necessary current to switch from the slow clutch to the fast clutch, thereby delivering a greater amount of yarn which makes high nap.

The gauge of the machine, or spacing of the needles, determines to a large extent how well electrical control systems can be adapted to tufting machines. Therefore, considering the small space requirements that are necessary to control multiples of units such as 120 individually controlled yarn feed rolls, it can readily be understood why components as small as the silicon solar cell has made its place in tufting machine pattern attachments.

British developments

(from page 107)

great publicity in Britain. It is, however, one of the most expensive items on the British market, retailing at about $13.30 per sq yd. It has, however, been paper scrim backed to give a non-slip finish coupled with dimensional stability.

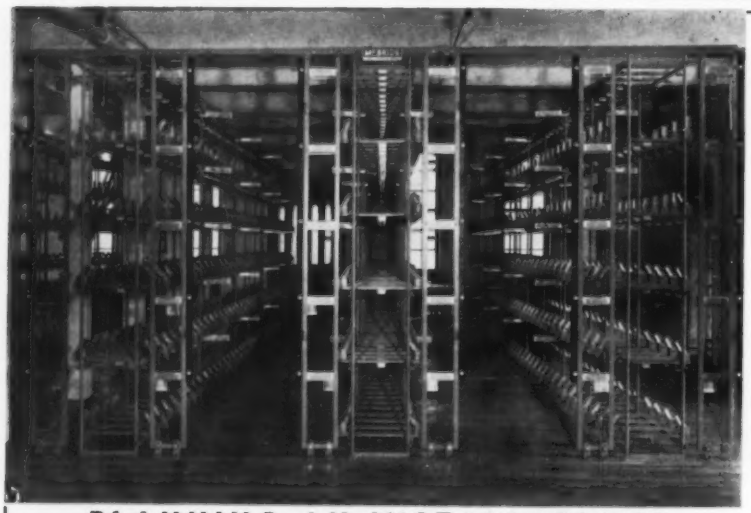
There is a growing tendency in Britain to make tufted carpets with a percentage of wool blended with the rayon staple. The most favored blend is 50/50 wool and rayon.

Some firms are showing interest in nylon. At the recent Nylon Fair in London, one firm showed a tufted carpet made from one of its yarns, a very high denier bulked nylon.

Printing and 1/8" Gauge Carpets. A machinery manufacturer, who introduced a 1/8" gauge machine recently, claims to be able to produce a luxurious carpet that will compete very favorably with Wilton types.

The machine can be made in loop-pile or cut-pile models, and is made in widths from 35" to 223". The tuft density produced by these machines is as high or higher than what can be achieved on Wilton-type conventional carpet looms, and this is particularly true when 100 per cent viscose yarns are used. Such high tuft density greatly improves the crush resistance.

Economically, an important facet of the machines is their giving good low-pile coverage with yarns as fine as 2s/2, 3s/3, etc. Sometimes, customer satisfaction can be obtained with the use of less yarn per square yard than is possible with the 3/16" gauge



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Or have any problems with existing installations? We would welcome the opportunity of discussing the matter with you.

We also invite your inquires on auxiliary equipment such as, roll up devices, folding apparatus, cloth trucks, back sizing and rubberizing machines, etc.

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In Canada: Hugh Williams & Co., 27 Wellington St., E. Toronto 1, Ontario

the Brightest name in tufting yarns

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small rugs
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SERVICES promptly
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PIONEERS in the development
of new fibers
for tufting yarn uses

DEVELOPS personalized ideas
in its own
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DELIVERS smoother
tufting yarn performance
for more
profitable production

Candlewick Yarn Mills Inc.

DALTON, GEORGIA

machines.

Yarn strength is not as important to good running as is even yarn. All-nylon, all-wool, or blend yarn. All-nylon, all-wool, or blend long as they are free of knots, etc., that hang up in the needles.

But this firm's most exciting development is perhaps the carpet printing machine. This was shown working at the Carpet Fair in London last spring. It was working on a narrow width piece of rayon ⅛" gauge cut-pile black-and-white mottled carpet, overprinting this with red.

The dyestuff used was a fiber reactive type, and the unit was printing simple patterns which were well defined and which penetrated right through to the back of the carpet. Rate of production, according to the manufacturer, depended merely on how fast you wanted to run the machine.

It was not possible to show the full carpet printing range that this firm builds, so that the printed carpet was emerging from the machine still wet. Color marked off if the carpet were brought into contact with any other material. This could very well be overcome by effective after-drying, followed by washing-off.

A full-size range for printing carpets in several colors has been installed in a printworks near Manchester and it is hoped that this will come into production very shortly, working on a commission basis for the entire tufted carpet trade.

Knitted Carpets. This brief summary of developments in, and in competition with tufted carpets in Britain, would not be complete if some mention was not made of knitting. Filling knitted carpets, made on circular knitting machines adapted for producing thick, deep pile fabrics are being evaluated in the trade, while work has started again to develop a filling laying-in mechanism on a warp knitting machine.

Some years ago experimental quantities of warp-knitted carpets were made of cotton, and it was thought that, given satisfactory yarns, this system offered good possibilities. It remains to be seen, however, how it will now compare with tufted carpet manufacture, a process probably much cheaper than warp knitting and every bit as fast.

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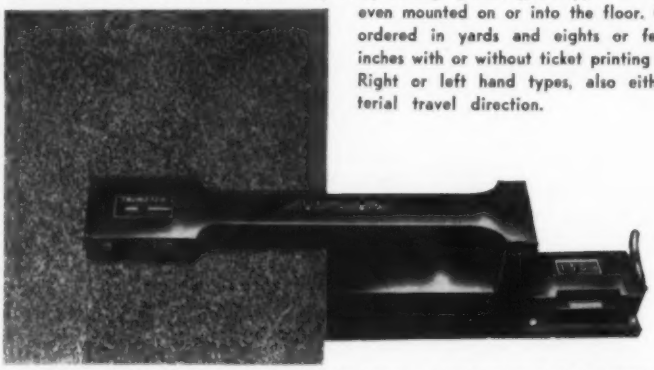
Special Models built to "Pass Butt" seam of tufted carpet between measuring and back-up wheel.

Machine can be mounted to practically every rolling system, (pile up) to a table or even mounted on or into the floor. Can be ordered in yards and eights or feet and inches with or without ticket printing device. Right or left hand types, also either material travel direction.



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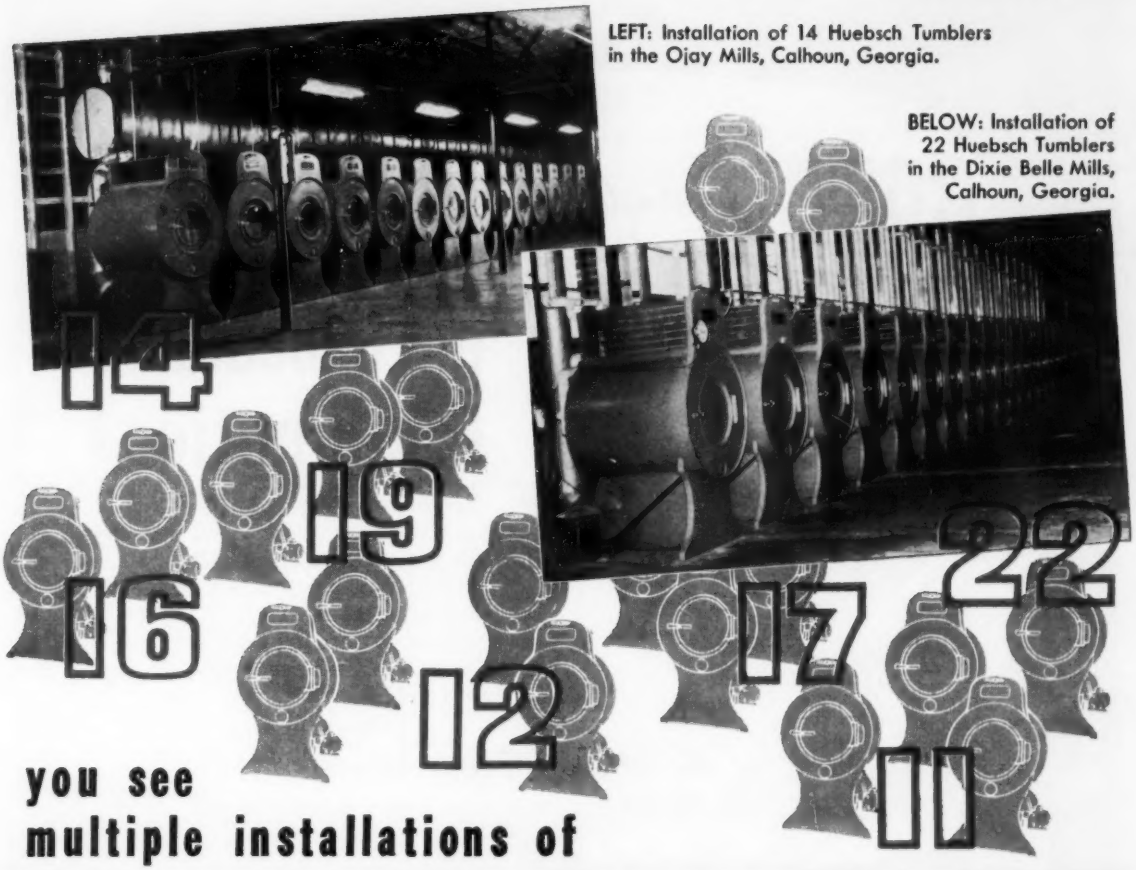

LEFT: Installation of 14 Huebsch Tumblers in the Ojay Mills, Calhoun, Georgia.

BELOW: Installation of 22 Huebsch Tumblers in the Dixie Belle Mills, Calhoun, Georgia.

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HUEBSCH TUMBLERS

all over the Tufted Textile Industry

because they

DRY FASTER at LESS COST

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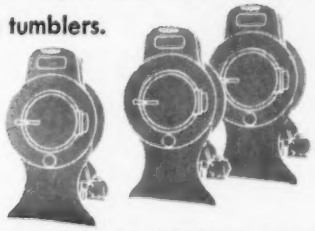

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KNOWN AROUND THE WORLD

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an unbeatable combination!

There is never any doubt about the quality of the equipment you buy from Cobble Brothers. It is time-tested and proven before being placed on the market. Furthermore, it is known around the world and is to be found wherever **only the best** is acceptable. For the finest first . . . see Cobble first!

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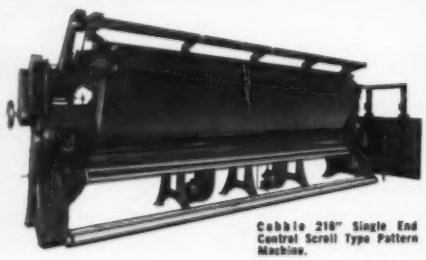

Cobble 218" Single End Control Scroll Type Pattern Machine.

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Super Tufter 208 Dial Type Yardage Machine Equipped with Roll Type Pattern Attachment.

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CREELS REROLLS BURLING FRAMES
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BEVEL EDGE TRIMMERS HOOK AND KNIFE GRINDERS

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AUTOMATIC SELVAGE LIFTERS AUTOMATIC SELVAGE TRIMMERS
AUTOMATIC PIN TENTER FRAMES SCRIM APPLICATORS
LATEX APPLICATORS INFRA RED DRYERS

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Textile Industries
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Tear along this line to post in spinning, winding, or weaving department.

All of us lose on MIXED FILLING

FOR A REPRINT of this nomogram, write to The Editors, "Textile Industries," 806 Peachtree St., N. E, Atlanta 8, Georgia. Requests will be honored as long as the limited supply lasts.

Quickly find warp yarn take-up

With this nomogram and a 12-inch ruler how much a warp yarn contracts when woven may be quickly determined without calculations

by Steven D. George

International Engineering Associates

Exclusive

HERE'S a chart that makes it easy for you to compute the per cent take-up in a yarn during weaving. Use it like this:

Example: What is the per cent take-up in a yarn which measures 10.7 inches when the crimp works out, if the cloth length is 10 inches?

Solution: Enter the chart on the left at 0.7 (yarn length minus cloth length), and project to the right to yarn length, 10.7 inches. At the intersection with the central scale, read the take-up as 6.5 per cent.

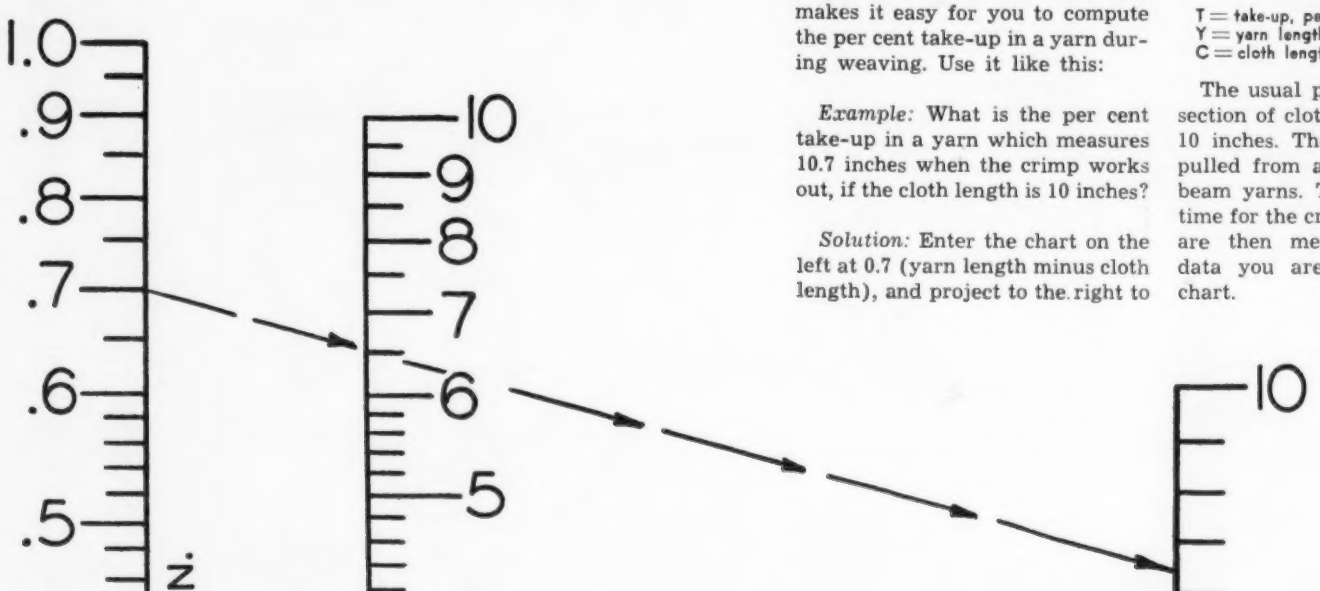
This chart is based on

$$T = \frac{Y - C}{Y}$$

where

T = take-up, per cent
Y = yarn length, inches
C = cloth length, inches

The usual procedure is to cut a section of cloth measuring exactly 10 inches. Then several ends are pulled from a section of groundbeam yarns. The yarns are given time for the crimp to work out and are then measured. With these data you are ready to use the chart.



Printing with Pigments

What is the difference between water-in-oil and oil-in-water emulsions?

How is each prepared?

When should you prefer one over the other?

by Aaron Permut
Consulting Chemist

Exclusive

THAT PIGMENTED emulsions have revolutionized textile printing during the past twenty years is no longer news. The increasing number of manufacturers of these emulsion printing colors is indicative of the impact they have had, especially since World War II. It is no longer a question of whether pigments will replace substantive dyestuffs in textile printing, but rather what portion of the market they have already captured; and what are their prospects for the future.

During the early years of this decade it was easier to survey the rising star of pigmented emulsions because printing plants were running on more uniform production schedules than they are today. By late in 1956 it was estimated that 50% of the dyestuff dollar in textile printing in the U. S. was being spent on pigment emulsions. In yardage this probably represented at least 80% of the total, because of the pigments' lower cost.

The total today is anybody's guess, but they certainly have continued to gain ground during the past three years with the increasing cost-profit squeeze on the industry.

Even the most conservative of printing plant superintendents and colorists have accepted their importance and have found a role for them in production. Part of this acceptance has been due to competitive cost pressure, but a good deal of it has been the continuing improvement in the fastness properties of pigment printing colors. The development of synthetic binder systems that could take the severest laundering and crocking tests have helped remove the prejudices that were carried over from the early years of pigment printing.

Large-scale printing with pigments began in 1938 with the water-in-oil system, and this emulsion type still dominates the pigment printing market. About ten years ago commercial oil-in-water systems first appeared, but it is only during the past five years that they have become significant contenders for the printer's dollar. Offering better all-around fastness for a quality-conscious consumer market, they seem slated for an increasingly larger proportion of the business.

PIGMENTS VS DYESTUFFS. The technical reasons for the supplanting of dyestuffs by pigments are generally well-known, but it may be worthwhile to review them here:

Quick and Easy Color Matching—No chemical development is required to see the final shade of a pigment print. Color matching is done as in paint mixing, a small smear of the print-paste on cloth gives the colorist his match directly. No compatability problems exist in mixing colors (of the same type), and any combination of colors is possible.

Simple After-treatment—Most pigment systems require only can-drying and curing to achieve maximum fastness. Chemical treatments, steaming, oxidation, and soaping are unnecessary.

Lower Cost—Virtually all colors can be printed 50-300% cheaper than their equivalent shades in dyestuffs. Black, navy, and scarlet are the exceptions.

Better Light-Fastness—With very few exceptions pigments excel in this respect. A whole spectrum of pigment colors is available to give 300 Fade-Ometer hours or more.

Better Chemical Resistance—The pigments selected for textile printing are acid-and-alkali-fast, unaffected by oxidizing and reducing fumes, and can be selected to be nonbleeding in commercial drycleaning solvents.

Brighter Colors—The general brilliance of pigment colors, especially in yellows, blues, and greens is better than dyestuffs.

Sharper Mark—Emulsion printing eliminates the flushing of prints by migration and lays the print nearer the surface of the cloth for maximum brightness and color value.

The above characteristics notwithstanding, there are still areas where dyestuffs have an advantage over pigments, and thereby retain a share of the printer's dollar. Among these are the fol-

Glossary

Emulsion—The fine suspension of one liquid medium in another. In a two-phase emulsion there is a "dispersed" phase and a "continuous" phase.

Dispersion—The fine suspension of a solid or semisolid in a liquid medium. Pigmented emulsions are both "dispersions" and "emulsions."

Rheology—The study of the flow properties of liquid media.

Thixotropy—The characteristic of certain liquid media which causes them to flow more readily when pressure is applied to them than when they are at rest.

Dilatancy—The characteristic of certain liquid media which causes them to flow more readily at rest than when pressure is applied to them.

Hydrophilic—"Water-loving" or water wettable.

Hydrophobic—"Oil-loving" or water repellent.

Hydrophile-Lipophile Balance—The ratio of "oil-loving" to "water-loving" molecular groups in a surface active agent, which determines its emulsifying characteristics.

lowing:

Maximum Wash-Fastness — When vats are properly chosen and properly applied, they are generally more resistant to severe laundering conditions.

Brilliant Reds—Stabilized azoics offer the best range of brilliant reds and scarlets available. No pigment system is comparable in price or shade.

Jet Blacks—No pigment system has as cheap or deep a black as aniline black. Vat blacks are also jetter and faster.

Navy—Stabilized azoics offer the cheapest and deepest navy blue for printing.

Discharge and Resist Styles—The chemical flexibility of dyestuffs makes them more suitable for discharging with sulfoxylate and reserving with metal salts. Although considerable progress has been made with water-in-oil systems in this regard, dyestuffs are still the criterion.

Most printers, realizing the benefits of each colorant type, will co-print pigments and dyestuffs, taking advantage of the superlative qualities of each. The continuing encroachment of pigment systems indicate that their advantages far outweigh their shortcomings.

WATER OR OIL? The classical nomenclature of emulsions has proven quite cumbersome for commercial description. The water-in-oil system has been referred to as:

Lacquer-in-water
Oil phase
Oil dilutable
Oil outside
Solvent phase
W/O

This confusion has led many people to use commercial names for simplicity and, while patent attorneys fret over the use of a company's trademark as a generic name, the practice continues nevertheless. For the purposes of this article the water-in-oil system will be referred to as "oil phase," while its opposite will be called "water phase."

Since the oil phase system pioneered the introduction of pigments into large-scale textile printing (here neglecting lacquers and metallic binders as specialty products), it set the standards for pigment printing in the textile industry. Millions of yards had been successfully printed in dozens of print plants before the advent of the water phase system; and once having been established, very persuasive arguments would be required to supplant it. As with all new systems, the water phase pigments had many shortcomings, particularly in running qualities; and only during the past two years have they found general acceptance.

Why there should be any difference in fastness properties, cost, and running qualities between these two emulsion systems may seem strange to the non-technical printing plant executive; but the same dilemma exists for textile chemists who realize that basically the pigments, binders, and solvents of both systems are identical. The answers are not simple and, when proposed, represent only hypotheses gleaned mainly from empirical data.

Essentially the differences stem from the physical form of the resin binders as suspended, emulsified, or dispersed in the emulsions and the influence of this form on the pigment-resin matrix which is laid down on the cloth during printing. Because this lattice-type matrix consists of the solid residue of multi-phase emulsions, its form may be affected by the rate of evaporation of solvents and water, the rheological properties of the emulsion during printing (influenced by furnishing and crushing), and the changing electrical properties of the fluid medium during the demulsification that takes place after the color is deposited on the cloth.

The color value and fastness of the print also depend on how the pigment is held in this matrix. It should be flexible and tough to resist dry-crocking. But it must also have good adhesion so that it can resist wet-crocking, when the substrate is swollen. It must be solvent-resistant to withstand drycleaning, and it should be alkali-proof for laundering.

Because all of these properties may be greatly influenced by physical environment, it is not surprising that important differences are observed between the two emulsion systems. Even in the same system, a slight change in formulation, which affects only the physical and not the chemical nature of the matrix, may have a significant effect on fastness, color-value, and stability. It has been remarked by one of the best known researchers in the field that one should not speak of two systems, but rather of twenty, be-

cause of the magnitude of these formulation effects.

Although there is no absolute area of agreement on the comparative advantages of the two systems, a certain preponderance of opinion can be used to characterize their differences:

Cost—This is a complicated and controversial subject, because it depends on at least five contributing factors:

Color Cost—The price per pound of the colors has generally been quite close. However, the earlier water phase color concentrates were so low in color value that the stigma of high cost has remained with them. Today's water phase colors are completely competitive in money-value, a factor which should help their further use.

Extender Cost—Oil phase extenders are considerably cheaper (12-15¢/gallon) than water phase extenders (19-22¢/gallon), because of the lower ratio of solvent to water and the absence of synthetic thickeners. The oil phase extender obtains its viscosity by a physical crowding of internal phase (water), while the water phase extender requires methyl cellulose for emulsion stability and printing viscosity.

Auxiliary Cost—Both systems use synthetic latices as low-crock additives. To achieve comparable dry-crock fastness, more low-crock additive is required for the oil phase. Water phase print pastes generally require small quantities of antifoaming agents, and may require humectants for certain purposes.

Color Value—While oil phase extender costs are lower, the color value of dilute cuts is better for the water phase. As the cost for pale shades is mostly extender costs, this would make out a case for the oil phase; but to achieve fastness in these light shades proportionately higher amounts of low-crock additives are used in oil phase print pastes, cancelling out the advantage of lower extender cost. To arrive at a specific cost comparison, the depth of shade and fastness requirements of the two systems must be considered.

Print Paste Consumption—In the evaluation of comparative costs, laboratory strike-offs have not been accurate. To print both systems with the same engraving and same crush has also been misleading. Water phase print pastes should be printed with shallower engravings and with less crush than oil phase colors. Being dilatant in nature and containing hydrophilic surfactants, they require less pressure than the oil phase (thixotropic) for level printing. Under these conditions differences in extender cost, color cost, and auxiliary cost may be completely reversed.

In other words, it is on long runs and under the proper conditions for each system that a true cost is to be found.

Fastness—The early oil phase pigments were notorious for poor dry-crocking and this reputation was long in being lived down. They are still harder to protect than water phase pigments in this respect, although quite acceptable results can be obtained with low-crock additives. In wet-crocking they have always been somewhat better than the water phase, although in laundering both systems hold up equally well. Dry-cleaning resistance is a chemical phenomenon and, as expected, both systems behave alike. Light fastness is primarily a function of the pigment itself and, therefore, both systems are equal in this respect.

Running Qualities—The critical mechanical stages of machine printing are in the churning furnisher roll of the color box and the constant attrition of the doctor blade against the engraved roller. Neglecting the pre-polymerization of the print paste resins in the color box (characteristic of many of the European water phase systems), the furnisher puts the emulsion to a severe stability test, particularly when a small pattern is being printed and print paste consumption is low. Oil phase emulsions are more sensitive to excessive agitation and have been known to break under these conditions; storage of residual pastes is also a risky affair and requires, at the very least, a thorough remixing. The oil phase print paste has better lubricating qualities and gives less trouble at the doctor blade. Tarnishing has been one of the major problems of water phase emulsions (aggravated in the case

The critical mechanical stages of machine printing are in the churning furnisher roll of the color box and the constant attrition of the doctor blade against the engraved roller.

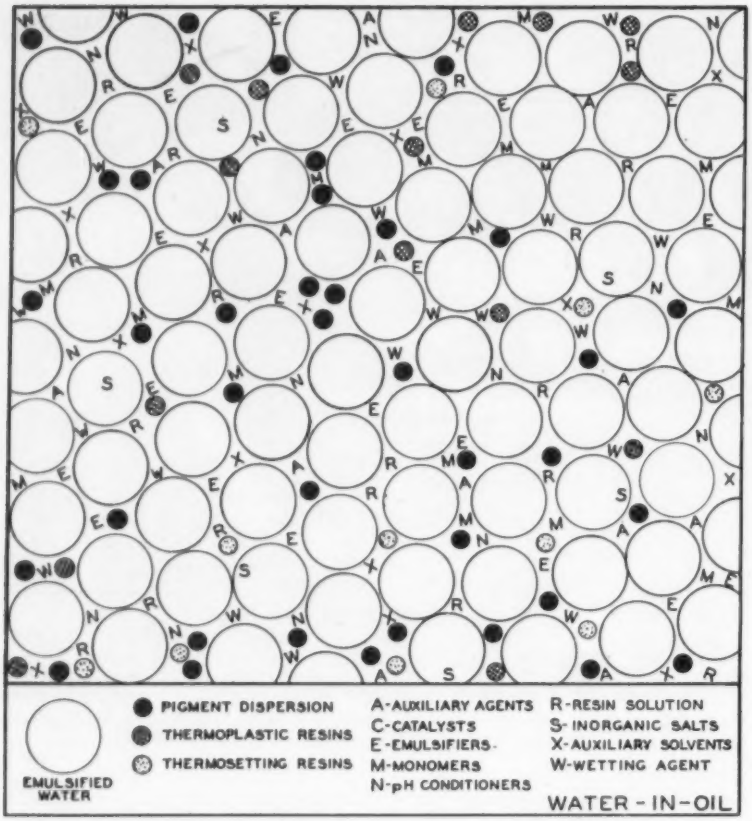


Figure 1. Schematic diagram of commercial water-in-oil print paste.

of copper rollers by the formation of cuprammonium), and much of it has been caused by the improper incorporation of printing auxiliaries. Printers have the tendency to treat water phase emulsions like gum solutions, and will frequently add a miscellany of petrolatum, glycols, alcohols, waxes, etc., which abuse the stability of the emulsion and may cause scumming and doctor-blade build-up. Indiscriminate addition of reinforcing resins and latices is another source of facing; a precipitate of resinous material becomes coated on the engraved roller and the doctor blade cannot clean it properly.

Cleaning Equipment—In this respect water phase pigments have a substantial advantage because they can be washed off the machine and out of the color box equipment with plain water. Oil phase colors require the use of solvents or a high pressure water stream to strip the color off the equipment. Labor costs are higher and the cleaning job is more unpleasant with oil phase colors, and solvent cleaning increases the possibilities of dermatitis and nausea.

Ventilation—Although the water phase emulsion contains more solvent than the oil phase, the solvent is the internal phase and does not volatilize appreciably during printing. Oil phase colors require a very high fresh air displacement in the printing shop. Both systems are safe from fire in the emulsion stage, but both require good fume exhaust over the drying cans to prevent the accumulation of flammable vapors.

Sewer Disposal—In areas where silty streams are present and no fishing or swimming activities are possible, both systems may be dumped into the stream without special precautions. But where stream and beach pollution is an important consideration, only the water phase colors may be dumped, as they will dilute and become lost. Oil phase colors can not be dumped in this manner and must be recovered by a grease-trap system for disposal. With the growing awareness of chemical pollution of streams, the time is coming when stream-sewer disposal can no longer be employed by oil phase printers.

SPECIAL USES

Discharge Printing—Although a great deal of effort has been expended and some claims of success have been made, discharge printing with pigments has not been generally acceptable. Oil phase pigments have given the best results because the inner water phase can support sufficient sulfoxylate for discharging light grounds. Water phase extenders lose viscosity and stability with discharge chemicals and can support only enough sulfoxylate to discharge azoics and solubilized vats that lick into the pattern during printing.

Resist Printing—Here again the reserve salts required cannot be supported by the water phase extender. Fairly successful resist prints have been done with the oil phase.

Pad Dyeing—Only the water phase colors can be adapted for this application, which is growing more important every day. Millions of yards of cotton goods are pigment pad dyed every month, the dyed grounds then being readily pigment printed (either oil or water) after drying the goods. This style combination is regularly employed with synthetics and blends, on which substantive dyestuffs are unsuitable. Straight aqueous systems (no emulsions) are well suited to pad dyeing when used in combination with water-soluble thermosetting resins and synthetic latices.

WHAT MAKES THEM TICK? The chemical composition of pigmented emulsions is quite complicated and may consist of as many as twenty different ingredients in a single color concentrate or clear emulsion. This maze of components results from the necessity of maintaining machine stability while carrying the basic pigment and binder system required for textile fastness.

The physical and chemical attrition to which textile prints are exposed is unrivaled by that of

any other protective or decorative coating. Exposure to light, severe abrasion, chemical attack, and solvent treatment compose the typical environment of a printed textile. Yet the coating is microscopically thin, discontinuous, and applied on a substrate that is continually swelling and contracting. The print paste must carry the components that will insure the success of the coating against all of these elements.

Yet an emulsion is the most difficult vehicle for the application of a coating as it has, by nature, certain intrinsic weaknesses that work against stability. The oil and water phases of an emulsion are quite different in specific gravity (0.8 as compared to 1.0), which encourages separation. Mechanical agitation increases the frequency of collision between droplets of a dispersed phase, which increases the chances of agglomeration.

Extreme changes in temperature may affect the solubility of dispersants, resins, and stabilizers, and can also cause flocculation of the pigment dispersion. The pigment emulsion chemist must build into his formulation safeguards against all of these influences, and yet make his system simple to prepare and fool-proof in application.

An insight as to the lengths to which formulators have gone may be found in the extensive patent literature of textile pigment printing. Averaging ten patents each year since 1938, inventors have described resin systems, emulsifiers, pigment dispersions, and stabilizers; each invention borrowing something from the past and adding some small detail intended to bring its process to perfection. Many of the really important features of commercial textile printing emulsions have been adapted from resin emulsion paint and paper printing ink technology.

Both the oil and water phase pigment systems have certain fundamental similarities of composition:

Organic pigment—chosen for light-fastness, tinctorial strength, and chemical inertness.

Thermosetting resin — chosen for adhesion, alkali and soap fastness, solvent resistance, and water insensitivity.

Thermoplastic resin — chosen for flexibility, adhesion, solvent resistance, and light stability.

These are the components which remain on the cloth and which determine the fastness and color of the print.

In addition to these, they both usually contain:

Emulsifiers—to maintain the stability of the emulsion.

Catalysts—to speed the polymerization of the resins.

pH modifiers or conditioners—for emulsion stability.

Water—to carry water soluble or dispersible ingredients.

Solvent—to carry solvent-soluble or dispersible ingredients.

Of course, the major functions of the dispersed water or solvent in textile printing emulsions is to provide the required thickening of the print paste for application on the machine, and to produce a print composed of discrete droplets that will not form a continuous film on the cloth. This latter characteristic of emulsion printed goods is the reason for their soft hand and good draping qualities.

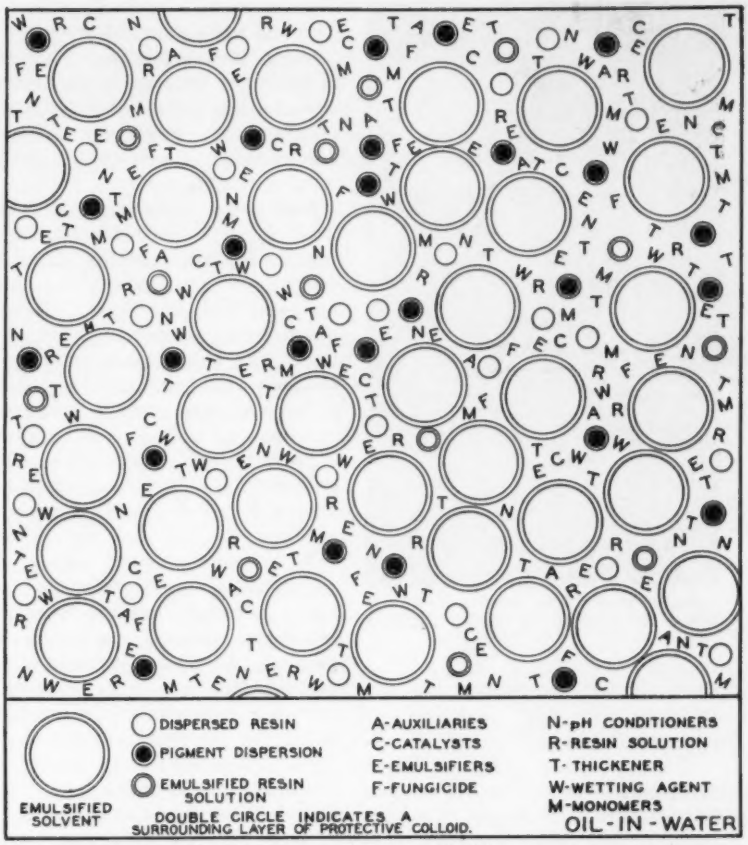
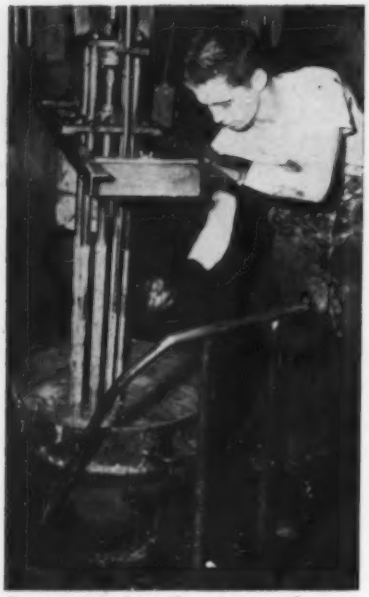


Figure 2. Schematic diagram of commercial oil-in-water print paste.

The accompanying illustrations *(Figure 1* and *Figure 2)* are schematic diagrams of the composition of commercial oil and water phase print pastes. It will be noted that, contrary to what might be expected, there is more water in an oil phase print paste than in a water phase print paste. Oil phase print pastes generally carry about 67-70% of water (by volume), while water phase print pastes carry about 50-70% of solvent (by volume).

In general, the pigment is carried in the continuous (outside) phase while the resins may be found in either phase in solution, suspension, dispersion, or emulsion. Printing additives are generally soluble or dispersible in the continuous phase, but they frequently migrate to the interface between the phases, orienting



Components of textile printing colors are forced into emulsion by violent agitation.

themselves in accordance with the hydrophilelipophile balance of their molecular structure.

The emulsifiers of the oil phase system are generally oil-soluble (or dispersible) resins, although certain cationic surfactants have been used for this purpose. In water phase print pastes, the emulsifiers are usually water-soluble anionic agents that have pigment dispersing characteristics as well as emulsion stabilization action.

In both systems the carrier emulsions (extenders) are formed by vigorous mechanical agitation during the slow addition of dispersed phase to continuous phase. When the colors and auxiliaries are added to the extender, additional agitation is required to disperse them uniformly. The most suitable machine for carrying out the emulsification and blending is a high-speed enclosed turbine homogenizer. Unlike the manufacture of commercial emulsion polishes and cleaners, the components of textile printing colors are violently forced into emulsion and are kept in that state by careful conditioning of their environment.

The colorist and printer are not concerned with the complications of emulsion color formulation; they expect manufacturers to deliver to them a packaged product with all the safeguards necessary for trouble-free printing. They also expect to be able to use, interchangeably, the products of all textile color producers without encountering compatibility problems.

In general, the oil phase products of all textile color manufacturers are compatible, although differences in color value and fastness will be found. Certain manufacturers are known for their high color clears, others for fastness or running qualities. Some printers obtain optimum results (under their own running conditions) by mixing the color concentrate of one manufacturer with the extender of a second and the low crock additive of a third.

Water phase colors are more sensitive to indiscriminate mixing, although most American types are mutually compatible. In general, European water phase systems are not interchangeable and are somewhat more complicated for the printer to prepare. This inflexibility has prevented imported textile colors from making much headway in the U. S.

Some of the European water phase systems contain isocyanate cross-linking agents, which cause dermatitis. Others produce prints of outstanding washfastness, but only at the cost of harsh hand. Print paste instability (particularly in storage) has been another drawback of these foreign products, and some produce fishy odors in the printed goods after curing.

FACT AND FICTION. Textile printing is essentially an art, and around all arts there grows a lore of beliefs, prejudices, and misconceptions. When one considers that the success of a printing system may depend, among other things, on:

Machine speed
Furnishing apparatus (and direction)
Crush pressure (and number of crush rollers)
Engraving depth (and type)
Print-paste viscosity (as influenced by speed)
Doctor blade adjustment
Back grey (and lapping)
Pitch of the rollers
Size of the pattern (pegs, blotches, etc.)
Type of goods (and construction)

it is not surprising that conflicting opinions may arise when running the same print-paste on different machines or under varying conditions. It is the rare textile printing color salesman who doesn't have half a dozen cases of one customer rejecting a product for poor performance (color value or running qualities) and three other customers swearing by the same product for superior results.

It is inevitable, therefore, that conflicting opinions about oil phase and water phase colors exist among printers. As pointed out in the previous discussion on costs, many of the early tests with water phase colors were carried out on machines that were set up for running oil phase; and under these conditions it is not surprising that optimum results were not obtained. When the incentives for using water phase (sewage disposal, dry crock-fastness, ventilation, etc.) have become important enough, printers have changed the running conditions and found them acceptable.

Another myth which has been exploded by experience is the belief that pigment systems, being nonsubstantive, should be printable on any or all types of fibers without any difference in levelness or fastness. This would be analogous to an industrial baking lacquer being applied to any type of surface (regardless of preparation, texture, or composition) and being equally suitable on wood, metal, or plaster. Textiles differ in chemical composition and construction; and each presents a printing surface different than the other. The differences in printability between spun rayon and filament, for example, are greater in magnitude than any found between the water and oil phase systems themselves.

The printability of any fiber depends on its ability to be wet by the print paste, and the fastness of the print depends on the type of resin-to-fiber bond that results from drying and polymerization. Hydrophilic fibers may be expected to behave differently than hydrophobics in printability; and

the latter appear to give better results with oil phase colors.

Fibers that are reactive with thermosetting resins should give better fastness than inert types. Porous fibers that expose more anchoring surfaces (capillaries) should be superior to the impervious varieties. Experience bears this out.

Cotton gives the best all-around fastness with pigments. Spun fibers display better fastness than filaments. Fastness is difficult to obtain on wool. Synthetics are more easily printed with oil phase pigments, but fastness in general is about equal to the water phase, depending in each case upon the specific resin system being used.

BEAT THEM OR JOIN THEM. For a long time the demise of pigment printing was gleefully predicted by those dyestuff manufacturers and colorists who felt that they were either encroaching on their business or reducing the mystery of their art. This attitude did not stop the advance of pigments, instead it put pigment emulsion formulators on the defense and has resulted in the much improved products on the market today.

Those dyestuff producers who have not followed the trend by either producing the basic pigments or the pigment-resin emulsion, have lost a substantial portion of the textile printers' business. Several have joined the trend, but more as a hedge against sagging sales rather than from a conviction of the wisdom of their actions.

Technological developments in wash-and-wear finishes have simultaneously aided pigments and hurt vat dyestuffs. The polymerization treatment required for resin finishing suffices for pigment printed goods and eliminates any other wet end-treatment. But these finishing resins have had serious effects on many vat dyestuffs, reducing their lightfastness drastically, without influencing pigment lightfastness at all. Some of the poor fastness qualities of the early pigment systems were improved to such an extent by wash-and-wear finishes that they received acceptance much earlier than they deserved on their own merits.

Research and development is going on apace in the laboratories of pigment emulsion manufacturers. New developments in resins, thickeners, catalysts, and pigments are being hungrily exploited to produce faster, brighter, and cheaper textile prints.

No clairvoyance is required to predict that hardly a printed textile will be produced by 1960 in which pigments are not used.

In the final stage of manufacture, a pigment color for textile printing passes through a centrifuge to eliminate all impurities. The colorist and printer expect a packaged product which will give trouble-free printing.

When to use an unrolling supply at the twister

■ THERE are two main reasons for twisting from an unrolling supply:

(1) To avoid the twist which is always imparted by overend delivery as the yarn is drawn over the end of the supply package;

(2) To provide free delivery from a double flanged bobbin in which the head diameter is so much greater than the barrel diameter that the yarn will not deliver satisfactorily over the end.

For low twist yarns with soft slubs or thin places, the choice of either overend or unrolling will depend upon which of the two methods gives best running conditions for the type of supply package being used. For example, parallel tubes or "ironheads" lend themselves to unrolling, while cones do not.

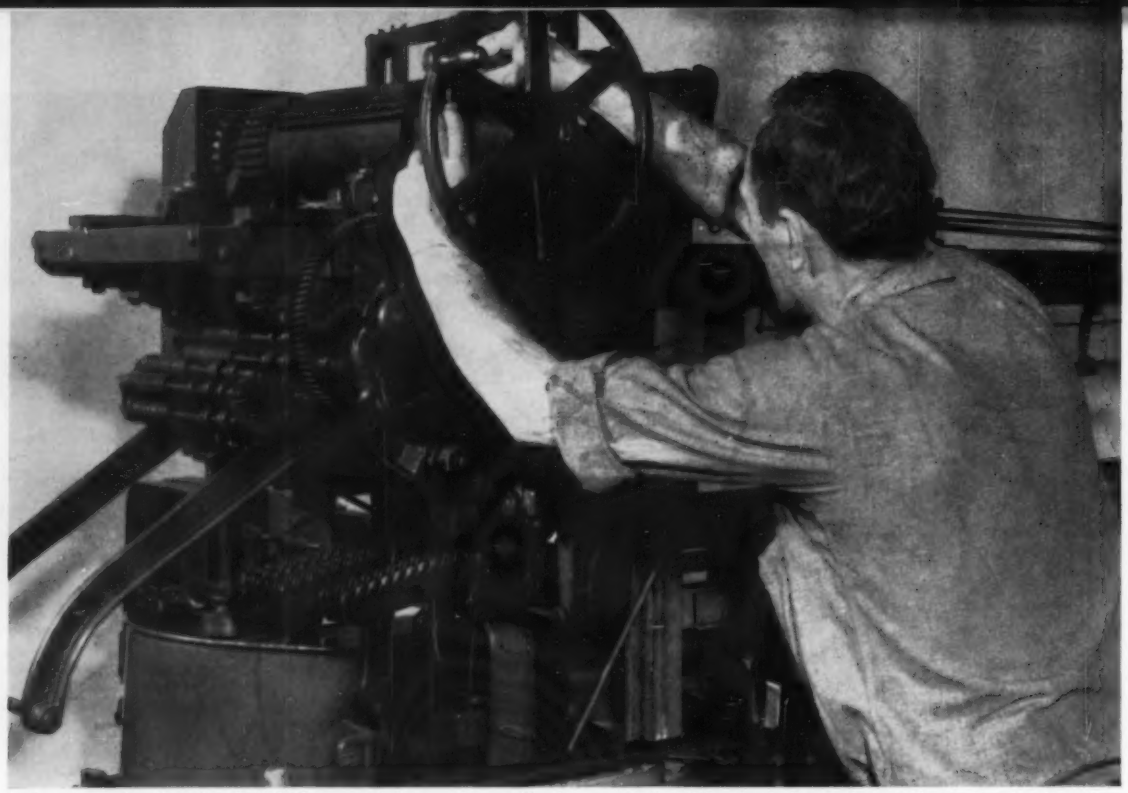
Singles yarn spun with medium to high twist is usually unrolled. An unrolling supply gives the best results with high twist yarn because there is then little or no likelihood of the twist backing up to the supply package and causing kinks. Also, a straighter delivery line can be obtained than with overend delivery. Since the yarn is unrolled from the side of the package instead of being drawn overend, it is under more or less consistent tension—although tension will vary from the outside to the inside of the package.

Here is the way to prepare a Model 10 ring twister creel for an unrolling supply. The yarn, instead of passing through the tension assembly, is drawn over a guide rod from which it passes to the stop motion drop wires. The guide rod is attached to movable brackets so that it can be adjusted to increase or decrease the degree to which the yarn wraps around it. Moving the rod in toward the twister frame decreases the angle in the thread line as well as the amount of yarn wrap around the rod and thus decreases tension on the yarn. Conversely, moving the rod out from the twister frame increases angle, wrap, and tension.

It is extremely important that the creel pins fit the bores of the yarn carriers properly. Creel pins that are too tight may cause the supply package to bind, thus creating tension peaks. On the other hand, if the supply package fits too loosely, it may revolve eccentrically as the yarn pays off. In some cases it may also revolve fast enough to creep off the creel pin. In order to have the carrier fit without binding or excessive looseness, the diameter of the pin should be about 1/16" less than that of the bore of the yarn carrier.

Dirty creel pins can cause trouble, too. Sometimes lint will work onto the pin, especially if a very linty yarn is being run. Since the lint can make the supply package bind and cause tension peaks, it is good practice to clean the pins regularly. One way of effectively doing this is to wipe the pins with an oil-soaked rag. This not only cleans, but also lubricates the pins.

From a recent issue of "Twists and Winds," a Universal Winding Co. publication.



A fixer times head motion lock knife cam. Such care is an effective means of avoiding bent vibrator lever and other head malfunctions.

Here are several steps you should take to

prevent bent vibrator levers

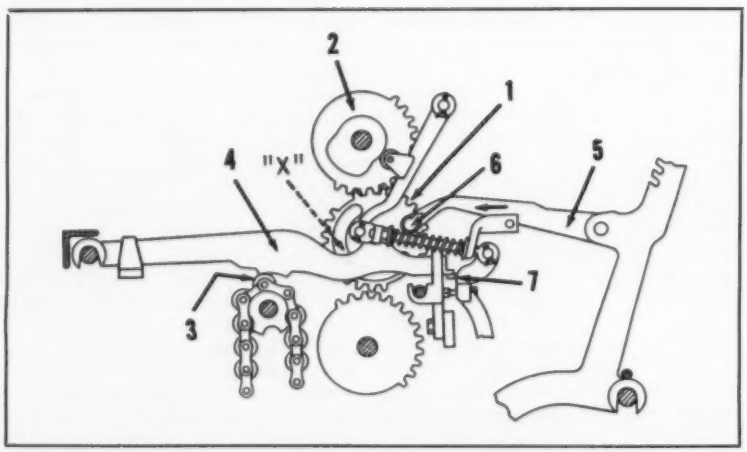


FIGURE 1. This schematic diagram shows the normal conditions which cause loom harnesses to be raised. The vibrator gear (1) is raised into mesh with the top cylinder gear (2) because of the presence of the riser or chain roll (3) under the "run" of the vibrator lever (4). The vibrator gear is completely out of mesh with the cylinder gear at this stage. The rotation of vibrator gear (1) will cause the vibrator connector (5) to move in an arc on the direction indicated by the arrow until pin (6) reaches a point designated as "X". Note that the lock knife (7) is in its "in" position and that it is under point of vibrator lever.

THE MAJOR cause of bent vibrator levers in C & K head motions is malfunction of the lock knife, according to a report issued by Crompton & Knowles Corp. The illustrations accompanying this discussion have been prepared to show some of the conditions under which vibrator levers are subjected to sufficiently abnormal loads to cause them to bend.

Normal operation of the head motion resulting from a riser being under the vibrator is explained in Figure 1. Also, normal operation resulting from a sinker being under the same lever is shown in Figure 2.

The lock knife must hold the vibrator lever so securely that it in turn can hold the vibrator gear in proper mesh with the cylinder

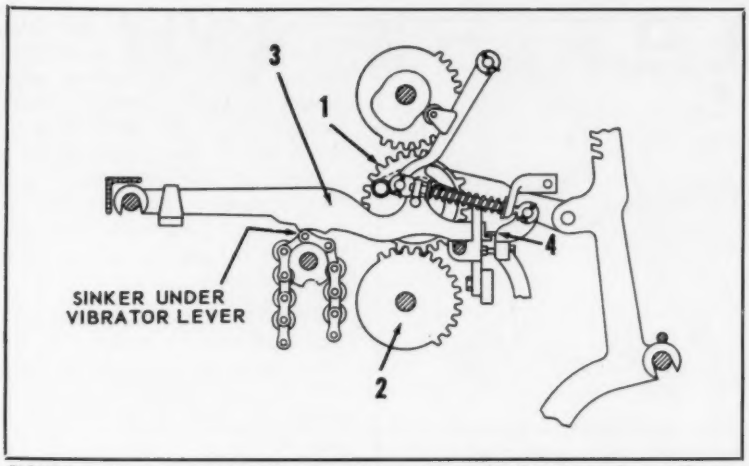


FIGURE 2. Also, in normal operation, a sinker or tube under the vibrator lever will cause the vibrator gear (1) to be lowered into mesh with the bottom cylinder gear (2). Note vibrator gear (1) is completely out of mesh with the upper cylinder gear. The lock knife (4) is in its "in" position and over the tip of the vibrator lever. Normally when two gears are engaged and one gear is imparting motion to the other gear (in this case the cylinder gear is driving the vibrator gear), there is a force trying to separate the two gears. Because the cylinder gear is fixed in solid bearings, the floating vibrator gear will have a tendency to rise out of mesh with this cylinder gear. However, if the lock knife is correctly in position, as is illustrated, the vibrator gear cannot rise out of mesh with the bottom cylinder gear.

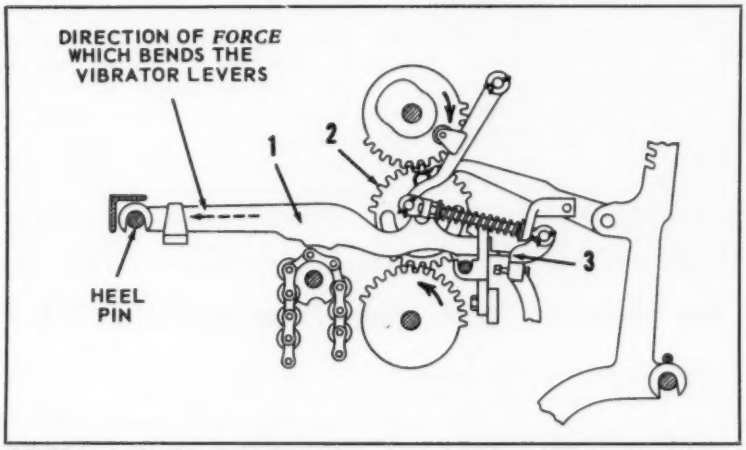


FIGURE 3. In this drawing is illustrated an abnormal condition brought on by failure of the lock knife to hold the vibrator gear in mesh with the bottom cylinder gear—this is the condition that causes bent vibrator levers. Although the sinker is under the "run" of the vibrator lever (1) the vibrator gear (2) is not fully meshed with the bottom cylinder gear. This condition is caused by a failure of the lock knife (3) to hold the end of the vibrator lever down. When this occurs, the vibrator gear (2) will be half in mesh with the top cylinder gear and half in mesh with the bottom cylinder gear. The resulting force will drive the gear and vibrator lever backward against the heel pin as indicated by the broken arrow. Then two things can happen: either the vibrator lever will bend or teeth will break from the vibrator gear.

When a vibrator lever becomes bent in a manner such as this, it not only can produce expensive pattern defects but occasions the breakage of many items in the head motion—combs, gears, etc.

gears at all times. When light harness loads are involved, this is not difficult for the lock knife to perform even when vibrator or knife is slightly worn. When the load becomes considerable, however, the knife may fail to hold the lever and thus to hold the gears in proper mesh.

Failure at this point will allow the vibrator gear to slip far enough out of mesh with the bottom cylinder gear to permit it to become partially meshed with both top and bottom cylinder gears. As is shown in Figure 3, the resulting force tends to drive the lever in the direction of the heel pin, and when this occurs the lever will bend or the vibrator gear will lose a tooth or two.

There are several circumstances which could cause the lock knife to be in an improper position and to lead to the damage just described. One of them is bad

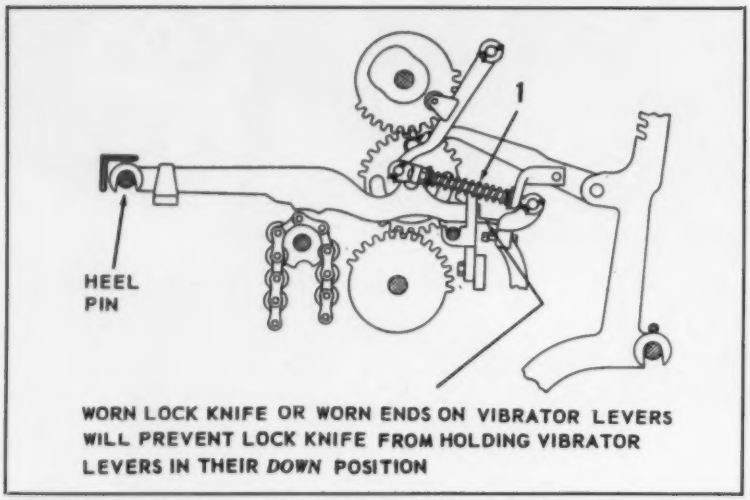

1
HEEL
PIN
WORN LOCK KNIFE OR WORN ENDS ON VIBRATOR LEVERS
WILL PREVENT LOCK KNIFE FROM HOLDING VIBRATOR
LEVERS IN THEIR *DOWN* POSITION

FIGURE 4. Several things contribute to the lock knife's being in an improper position and therefore causing damage to the vibrator levers or gears: (a) improper timing of the lock knife; (b) a broken or weak spring (1) such as is pictured here, even though the timing be correct; and (c) worn lock knives or worn tips on the vibrator lever. Excessive wear of any of these parts will cause the vibrator levers to slip up over the lock knife in the manner illustrated here. Parts should be inspected periodically and with the necessary frequency.

timing of the lock knife, a condition under which the knife does not get into position to hold the vibrator lever down before the bottom cylinder gear rotates the vibrator gear.

Another cause is a broken or weak spring. Sometimes the spring will give a slow movement to the lock knife even though the timing is correct.

A third cause is the wear already mentioned. Excessive wear will allow these parts to slip up over the lock knife in the manner illustrated in Figure 4.

Most head motions are fitted with a safety device to prevent damage to the head motion parts should the lock knife fail to function properly. On W-2, W-3, or W-3A looms this safety catch is located in the crankshaft gear that transmits power to the upright shaft. This catch is a slip key that is used instead of a conventional key.

Unfortunately this key is often tightened until it cannot slip, and this condition defeats its very purpose. This should be set so that abnormal loads will cause it to slip.

There are several things that can be done in a general way to help avoid the bent levers and other malfunctions in the head motions. One can avoid placing new vibrator levers in a head motion already equipped with old vibrator levers that are badly worn at the heel pin slot.

As an alternative, one can equip one or two looms completely with new vibrator levers, and use the old levers as replacements in head motions using old levers. Avoid using badly worn vibrator levers and keep lever alignment checked with a vibrator gauge.

Making low shrinkage yarn from Orlon tow? Here's help

■ OCCASIONALLY difficulties with low shrinkage (non high bulk) Orlon yarns are encountered by dyers and knitters because of variable shrinkage in these yarns. This variable shrinkage is generally due to cold drafting or stretching during yarn manufacture, and spinners may avoid this regardless of the processing system used.

To eliminate the problem of variable shrinkages, the following considerations should be adhered to during yarn manufacture to prevent cold drafting of the fiber:

a. Minimum tensions should be used to produce soft packages.

b. Low roving twists should be used.

c. The lightest possible travelers should be used.

d. Gilling and drafting operations should start with low drafts and increase progressively.

In addition to the above, the maximum fiber length must not exceed the roll settings of the drafting elements being used. Therefore, every precaution should be taken to restrict the staple length within this limit to prevent cold stretching of the fiber. Depending upon the system used, the following suggestions are offered:

Pacific Converter

a. Creel the tow carefully to eliminate crossed filaments.

b. Tow should not be heat stretched.

c. Use a wide adjustment of the variable cut attachment, limited only by length of longest fiber group to prevent stretching. This is done to minimize the drafting tensions in spinning operations.

Turbo Stapler

a. Use settings best suited for the fiber denier being used.

b. Use a heater plate temperature of 270 F to 280 F. Experience has shown this temperature range to yield the most uniform staple diagram.

c. Breaker bar depth should be accurately set for fiber denier being used. Breaker bar depth should be checked at each blade position to prevent occurrence of long fibers.

d. Relax all of the Turbo sliver in Fiber Setter at 10 psi steam pressure (240 F).

e. The maximum fiber length of the relaxed sliver must be shorter than the ratch setting of the secondary breaking operation. The function of this operation should be that of opening the sliver rather than breaking the longer fibers in the sliver. Any fibers that are broken in this operation will also have been cold drawn, thus contributing to a variable shrinkage problem.

*From Bulletin OR-96 published by Textile Fibers Department, E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del.

"Which mill makes better fabrics?"

One shirt manufacturer found out by a quality study; he also cut shirt seconds

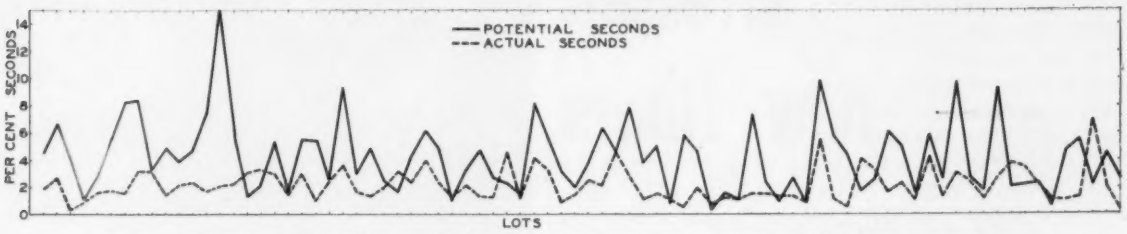


Figure 1. Reduction of seconds in men's dress shirts by inspection and recutting of defective front plies.

by George W. Edwards

The Enro Shirt Co.

Exclusive

THE STUDY which I shall describe was made to evaluate various fabrics which we use in men's dress shirts, from the standpoint of quality and to compare differences in quality between two mills which are major suppliers of these fabrics.

Inspection of shirt fronts was the check point—number rejected, and number recut to replace defects in the cloth, yielding more first-quality garments.

Using the front plies as the control point meant that we checked on about a third of the total cloth in a shirt (there are two front plies to a shirt). The study covered 6,414 garments, representing about 185,000 yards of various fabrics (see *Figure 1*). There were 80 cutting lots, averaging 80.18 dozen per lot.

The potential seconds found before recutting were 6.09%; inspection of shirt fronts and replacement of those with cloth defects reduced this to an actual total of 1.95% seconds. Thus 68% of the potential seconds were converted to first-quality garments by recutting.

Figure 1 is the plot of the complete study of 6,414 shirts. The solid line gives the potential seconds eliminated by recutting, and the dotted line gives the actual seconds produced. It must be remembered that about 0.35% of manufacturing seconds is included in the actual percentage of seconds produced.

Of the lots which had potential seconds of 5% or greater, half were composed of colored-yarn oxfords and chambrays. Excessive oil or tar spots were responsible for 66% of potential rejects in these fabrics; misweaves and other defects for 34%.

Carrying this study one step further, we selected from the low points of both the solid and dotted lines that fabric which repeatedly showed that it was the best in the 6,414 dozen shirts evaluated. We then compared this fabric (Mill "A") with fabric of the same construction from another mill (Mill "B"). This covered 800 garments, about 24,000 yards of fabric, from each mill.

Figure 2 shows on the left side the percentage of shirts which were potentially seconds, from the fabrics of each mill. Mill "A" shows a potential of 1.64% rejects, while Mill "B" shows 3.67%—almost 2¼ times as much.

On the right side of *Figure 2*, percentage of seconds after recutting and replacing defective front plies is shown. Mill "A" averaged 1.56% seconds; Mill "B" 1.74%.

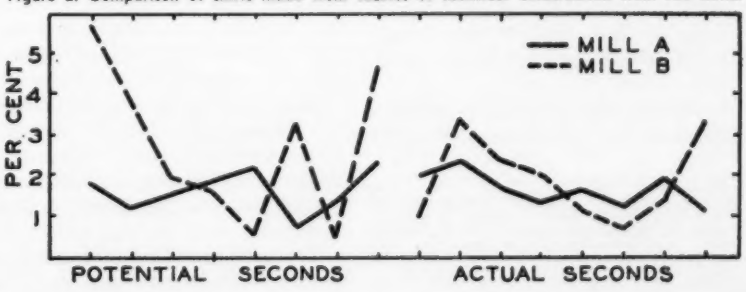
Had there been no front inspection in either case, the potential seconds from the fabrics of Mill "A" would have averaged 3.20%, while fabrics from Mill "B" would have produced 5.41%.

This study shows that the *very best* fabric (Mill "A") will yield 96 to 97% first quality shirts without inspection and recutting of fronts.

It also shows that the *average* fabric will yield at best about 94% first-quality garments without such inspection. Some fabrics would produce as high as 15% seconds without inspection, because of excessive amounts of certain defects such as tar spots and oil.

We found that inspection of fronts and rejection of defective fronts can substantially reduce seconds. Proper planning, based on experience with the fabrics from a specific mill, is necessary at the cutting table to provide the necessary material.

Figure 2. Comparison of shirts made from fabrics of identical construction from two mills.



TRI meeting stressed new fibers

They also discussed scientific cotton selection, odor-control in resin finishing, and fiber engineering

Between sessions, conferees gathered in the Exhibition Room, where scientific instruments and some of the newest fibers were displayed.

Staff report

THE 29th annual meeting of the Textile Research Institute got under way recently in New York's Hotel Commodore with introductory remarks by J. B. Goldberg, who served as chairman of the morning session. Executives representing all branches of the industry heard papers during the two-day program, ranging from research on natural fibers as carried out at TRI to developments in three-dimensional weaving* and in the control of odor in resin finishing.

The second day's program, under the chairmanship of S. Jack Davis of the Chemstrand Corp., was devoted to new developments and potentials of melt-spun organic fibers.

X-Ray Angle: Tomorrow's Tool for Selecting Cotton. In one of three papers on fundamental research projects, Ludwig Rebenfeld discussed an important aspect of the Institute's cotton research program in a paper, "Cotton Project Research on Fibrillar Orientation."

The degree of fibrillar orientation, one of the structural features which has proven to be of extreme importance, is measured by a value known as the X-ray angle. In the work carried out at the Institute along these lines, significant relationships between the X-ray angle and several cotton mechanical and chemical characteristics have been found.

Dr. Rebenfeld demonstrated the relationship between certain single fiber properties and the X-ray angle of 14 American upland experimental cottons. In summarizing this phase of the project, Dr. Rebenfeld stated that in general cottons with a high degree of fibrillar orientation are stiffer, stronger, and less extensible, while cottons with a low degree of orientation are less stiff, weaker, and more extensible.

In subsequent work, yarns were spun from the same group of 14 cottons under identical, controlled processing conditions, to determine whether the relationships observed carry over into the mechanical properties of the yarn. Dr. Rebenfeld showed that there is a highly significant correlation between yarn breaking tenacity and X-ray angle, indicating the importance of the degree of fibrillar orientation.

This relationship also illustrates the dependence of yarn strength on fiber strength and indicates that differences among cottons are transmitted to the corresponding yarns.

The relationship between the yarn breaking extension and the X-ray angle was also shown; the data illustrate the importance of the degree of fibrillar orientation in terms of the yarn breaking extension, and again show the influence of fiber properties on corresponding yarn properties. Yarn stiffness as measured by the elastic modulus is also dependent upon the X-ray angle.

In a third phase of the research project, investigations were aimed at establishing whether different cottons respond differently to chemical treatments. Chemical treatments were devised for the single fiber which simulated commercial finishing procedures and allowed determination of fiber stress-strain properties both before and after the chemical treatment. This made it possible to arrive at the effects of and the response to chemical treatments on a fiber-to-fiber basis.

In one phase of the work, six different cottons were subjected to an identical single-fiber mercerization treatment, and their resultant properties observed. It was possible to show, Dr. Rebenfeld stated, that the degree of response is related to the fibrillar orientation as estimated by the X-ray angle.

In concluding, Dr. Rebenfeld emphasized the importance of the cotton fiber's supermolecular structure on fiber properties, yarn properties, and chemical receptivity. "It is not too far fetched," he said, "to speculate that cotton

*The paper "A Third Dimension in Weaving," presented by Arthur R. Campman, Raymond De-Icer and Engineering Co., was essentially the same as the article "Weaving in 3-D," by the same author, in TEXTILE INDUSTRIES for July, 1958, pages 64-67.

may some day be selected for particular end uses by specification of the X-ray angle."

Odor-Control in Resin Finishing. M. Earl Heard, vice-president of research, West Point Mfg. Co., Shawmut, Ala., outlined the research activities of his company in attacking the problem of odor formation in resin finishing, which resulted in the development of a process for its control and the issuance of U. S. Patent No. 2,870,-041, and others pending. [See TI, for April, 1959, page 154]

Research into this problem was in large part initiated after an exhaustive survey showed it to exist at every level in the trade, Mr. Heard emphasized. The actual research work, in West Point's laboratory and plants, proceeded in several, well-defined stages. A study of the causes of odor development entailed not only an evaluation of resin classes and auxiliary products, but of the various finishing techniques as well.

Investigations showed that objectionable odors, namely the formaldehyde and fishy amine types, are present in resinated fabrics even though optimum formulations and finishing procedures are used. The evaluation showed resin classes to have characteristic odor types, as follows:

1. Formaldehyde odor — urea formaldehyde, methylated urea formaldehyde, ethylene urea formaldehyde, and modified glycol acetal.

2. Formaldehyde and amine odors—triazone, blends of epoxy resins with resins listed previously, and other resin blends.

3. No odor—epoxy.

Despite all theories regarding the mechanism of odor formation, according to Mr. Heard, "it is generally accepted that odor in resin-finished fabrics does occur even after extended periods of time and for no apparent reason.

"In well after-washed fabrics, free formaldehyde probably occurs only from hydrolysis of unreacted methylol groups from the resin. The fishy amines apparently can be formed in any class of formaldehyde resins by reaction of formaldehyde and ammonium compounds present."

Following this phase of the work, an evaluation was made of existing test methods for the detection of formaldehyde and amine odors in resin treated fabrics. This led West Point to develop an odor tester, in which the fabric is placed in an atmosphere of steam providing high humidity at the boiling point of water. Under these conditions the odor is quickly driven from the fabric and is readily detected by smelling of the vapor. The tested fabric is rated according to the intensity of the odor driven off; usually the fabric can be rated within a minute, Mr. Heard stated.

In a subsequent phase of the work, a study was made of the chemicals recommended for reduction of odor, which can be applied in the resin bath, in the after wash, and in final top softening. In addition, all practical techniques for finishing were explored.

Summarizing this phase of the work at West Point, Mr. Heard stated that "the best practice in finishing resin-treated fabrics includes as much alkaline, oxidative and neutral washing as is needed to approach a heretofore acceptable odor level followed by top softening. The goods are usually left neutral to slightly alkaline to inhibit resin hydrolysis and development of odor." Yet the best practices to date, he said, have resulted in fabrics with residual formaldehyde odor and possibility of later development of fishy amine. odor.

West Point's process for the control of odor involves the use of a bisulfite ion which reacts with available methylol groups in the resin, thus preventing the hydrolysis of these groups. Work indicates that a sulfonate is the ultimate product of this reaction. The treated fabric has a pH of between 7.0 and 7.5.

In the process, the alkali in the washer is replaced with a small amount of sodium bisulfite; and sodium bisulfite is added to the top softening bath where a compatible softener is used. A conventional multiple box washer has been found adequate in all cases for the washing step, and best results are obtained in top softening by drying the fabric at 250-300 F.

To eliminate the odor potential it is essential that the bisulfite product penetrate the fiber, where the resin has been deposited, in order that the reaction take place.

Fiber Engineering. Nylon and Dacron are entering a new phase of development from which new yarns will be forthcoming. Although retaining their basic fiber qualities, they will be tailored for specific end-use applications. Furthermore, by modification of the physical properties and geometry of these fibers, in fiber form, in yarn form, in fabric, and in the end-use article, a variety of textile structures are possible.

The key to the future devolopment of these fibers lies in their thermoplastic character.

This served as the theme of a paper, "Advancing Frontiers of Nylon and Dacron," presented by R. W. Nebel of the Du Pont Co. on the second day's program, which was devoted to man-made fibers, their properties, and uses.

Fiber engineering, or the modification of fiber properties through substantial changes in manufacturing conditions, has already produced a number of new fibers for specific end uses. Among the most recent developments discussed by Mr. Nebel is an experimental Dacron fiber for use as a sewing thread in garment manufacture.

In wash-and-wear garments, even though a stable fabric has been sewn on a properly adjusted machine, seams are still not perfect because the fabric is gathered within the loop formed by the top and bottom thread. This gathering could be eliminated by the use of a thread that would grow in length after the stitch was formed.

The experimental Dacron fiber, which imparts this unusual property of elongation to the thread, possesses a special molecular structure created in the manufacture of the yarn. This structure is converted by heating to a second molecular structure after the yarn has been made into thread. The molecular processes involved, Mr. Nebel stated, seem to be related to the conversion of amorphous polymer to crystalline polymer. Various degrees of elongation can be achieved, depending on the structure that is built into the fiber, but 15% length increase turned out to be right for sewing thread.

Physical Properties of Kodel Fibers

	In Air		In Water	
	70 F	160 F	70 F	160 F
Tenacity, g/den	2.5-3.0	1.8-2.5	2.5-3.0	1.8-2.5
Elongation, %	24-30	24-30	24-30	24-30
Initial modulus, g/den	25-35	22-32	22-32	20-30
Average stiffness, g/den	11	-	-	-
Average toughness index, g-cm/den/cm	0.4	-	-	-
Toughness (work to break), g-cm/den/cm	0.5	-	-	-
Resiliency (work recovery), %				
2% Extension	85-95	-	80-90	70-80
5% Extension	50-60	-	45-55	40-50
10% Extension	30-40	-	28-38	25-35

In actual practice it has been found that only the bottom thread need elongate to restore the fabric to a flat unpuckered state. For the upper thread, a high-modulus Dacron yarn should be used.

Mr. Nebel presented data obtained on a "Puckerometer," which measures the length that a seam must be extended to make it flat, showing the seam improvement when a fabric (a blend of rayon and Dacron) was sewn on a properly adjusted machine with the experimental sewing thread.

Kodel Polyester Fiber. E. V. Martin of Tennessee Eastman Co. presented a paper, "Properties of Kodel Fibers and Fabrics." This new fiber was presented to the textile trade last fall as one which significantly extends the range of fabrics and apparel that can be classed in the wash-and-wear or ease-of-care type.

Garments made from proper blends of Kodel with other fibers also are reported to have a pleasing, rather soft, wool-like, comfortable hand and, to a remarkable degree, possess the ability to stay neat in appearance.

This latest in the polyester family of fibers is at present available only in staple form. Its important physical properties are given in an accompanying table.

Polyolefins As Apparel Fibers? In a paper, "Polyolefin Fibers and Polymer Structure," Victor L. Erlich, vice-president of research and development, Reeves Brothers, Inc., reviewed the progress of the polyolefins, a term used commonly to designate a group of synthetic resins represented by polyethylene and polypropylene.

Up to the present time, commercial production of polyolefin fibers remains confined to monofilaments in gauges ranging from 2,000 down to about 40 denier, but for the most part between 1,000 and 300. These heavy gauges are used for industrial purposes—fabrics, ropes, and others.

Of the two polymers, polypropylene, because of its combination of high strength and excellent resilience, and better processability, is said to be in a more favorable position. These fibers can be spun, crimped, and textured, to be used for knitting, for woven and nonwoven fabrics, and in blends with natural and other synthetic fibers.

Mr. Erlich pointed out that while polypropylene has an advantage in economics, this is not a decisive asset, since certain limitations must be overcome in order to compete with other man-made fibers. And while plants are in construction for its manufacture, development work continues, for example in the dyeing of these fibers, which at present are colored by pigmentation. Copolymers, with dyeable and less hydrophobic side chains, he said, will be forthcoming sooner or later.

Polyethylene and polypropylene are presently manufactured on melt extrusion equipment, which can be adapted to the production of fibers down to 3 denier and perhaps lower, Mr. Erlich stated. Solution-spinning is the other possibility, and patents have been granted in Europe to indicate that this method is being considered.

Mothers prefer cotton for schoolwear, survey shows

■ MOTHERS have nominated cotton as the number one fiber for children's schoolwear, according to the National Cotton Council.

This preference was indicated in a national survey by the U. S. Department of Agriculture of more than 2400 mothers of children between the ages of 1 and 13 conducted last June and July, the Council explained.

The mothers were interviewed personally and asked their fiber preferences and reasons for their preferences in selected items of children's clothing, it was pointed out. A preliminary report* on this survey has just been released.

Seven out of 10 mothers stated a preference for cotton for girls' school blouses and 8 out of 10 preferred cotton for schoolboys' sport shirts. The major reasons cited for picking cotton for these two uses were appearance and launderability.

Seven out of 8 mothers picked cotton as their preference for their sons' school pants, while 4 out of 10 preferred corduroy and other cottons for their daughters' school skirts.

Both corduroy and other cottons were credited with being long-wearing and easy to care for in the school pants category; corduroy also scored heavily for warmth. Cotton rated well for skirts on appearance and washability. Corduroy has the additional advantage of warmth.

In girls' slips, more than 60 per cent of the mothers preferred cotton while 3 out of 8 preferred cotton for their daughters' dress-up dresses. Durability and ease of washing were the major advantages cited for cotton in these categories.

*A free copy of this report, "Mothers Discuss Cotton and Other Fibers in Children's Clothes," AMS-294, may be obtained from the Marketing Information Division, Agricultural Marketing Service, U. S. Department of Agriculture, Washington 25, D. C.

Designing a Fabric for Wash-and-Wear

by Sydney M. Cone, Jr.
Vice-President
Cone Mills Corp.

Abstract*

WHEN Merchandising House No. 1 came out with a resin-finished line for ladies' dress goods, it coordinated the requirements of the consumer with the finishing operation and the grey goods construction. This was the procedure:

First, its laboratory set up all of the standards; the policing of the standards at the grey goods level, at the finishing level, and at the merchandising level was handled by the laboratory. The laboratory required the use of epoxy resins, because the epoxies had no nitrogen element in them and were therefore considered completely non-chlorine retentive.

The principal difficulty with resin-finished fabrics for dress goods at the time was that a hot iron formed holes in the cloth. The holes were caused by hydrochloric acid released from the chlorine retained by the usual urea or melamine resins then in vogue. So the epoxies were used even though they weakened tensile and tear strengths considerably more than did the other resins.

This House attacked the strength problem by squaring the construction and heavying the fabrics. They heavied up the conventional broadcloth to 136 x 60 to get 196, and then redistributed the yarns more nearly equally in each direction. If the strength still wasn't there, they added weight by heavying up the yarns.

I think they did the sensible thing. Their products took a nice piece of the market. Their's was the classical approach.

Strength Loss Inevitable? No. 1's merchandise effort was aimed at the three problems of chlorine retention, reduced tensile strength, and reduced tear strength. There are other problems connected with resin finishing, but none that are so pertinent to our subject.

It has been assumed that a loss of tensile strength *as a consequence of resin finishing* can be expected to produce a finished article that will give less satisfactory use, and that the loss of tear strength also predicts less satisfactory end-use service. These two assumptions do not square with the facts in every case.

We have much evidence that the reduced tear strength and tensile strength of resin-treated fabrics does not necessarily result in fabrics that wear out sooner. To the contrary, there is evidence that the fabrics will wear *longer*.

Merchandising House No. 2 has assured me that the laundering of sheets, not treated with resin, creates a wearing-out of these sheets much sooner than an equal amount of laundering of resin-treated sheets. I have heard the same thing about shirts. The actual laundering of the shirts gives the lie to the tensile tests and the tear tests of the laboratory.

The resin-finished fabric outwears the untreated, although it may start from a lower base. What is the reason for this better performance?

Why Longer Wear? One opinion is that a surface coating of resin provides abrasion resistance. We are familiar with the theory that resins create a bond in the fiber and modify the fiber by cross-linking. In addition to the cross-linking, this surface deposit of resin adds to the wearability of the fabric.

Whether this theory is correct or not, we are interested in it, and we are investigating it further. If there is a resin deposit on the fabric, we must try to analyze its importance.

It is claimed to increase the abrasion resistance. Maybe so . . . on the other hand, a practical researcher in another laboratory argues that the reason for the better wearability of the resinated fabrics is the greater resilience of the fabric during the laundering cycle. He says that the untreated fabrics wear themselves out by knotting up and tearing against themselves, while the resilience of the treated fabrics prevents this kind of knotting and wearing from occurring in the laundry machine. It seems logical, doesn't it? We have definite reason to believe that resin-treated fabrics do not have

*From a paper presented at a meeting of the Textile Quality Control Association.

to reach the same laboratory tear and tensile strengths as untreated fabrics to produce the same or even better end-use results.

How to Reduce Strength Loss? How do we go about reducing this loss when we finish with resins? There are a number of suggestions. The chemists would have us examine the acidity of the catalysts and the temperature at which the curing is done.

They would have us take a look at softeners and the point at which they are applied to the cloth. It has been said that the softener should be put into the cloth before resin is put in, if it is to be most effective in retaining the strength of the cloth.

Some of the more interesting theories have to do with after-treating the cloth. The theory that cloth should be mercerized after the resin has been cured in it is an interesting one. The proponents of this theory maintain that if the caustic soda is not too strong and is not allowed to rise above room temperature, the strength of the cloth will be materially improved.

Some of us wonder whether the caustic soda has anything to do with it, outside of the possibility that the caustic soda is removing some of the effect of the resin.

Let's assume that we are going to add a process after we have resinated that doesn't simply cancel out the chemical reaction, but does contribute something new to the fabric. What are we doing, then, when we mercerize a fabric after it has been resin treated, assuming that we are not removing the resin or cancelling the reaction? Well, we are putting the cloth into the jaws of a tenter frame and pulling the fabric to a considerable degree. It may well be that the mechanical action of this pull is an important factor in restoring resilience to the cotton fiber.

Company C is convinced that a slight amount of compressive shrinking gives a great deal of benefit by restoring some resilience to the fabric. This is particularly applicable to work clothing and heavier fabrics. I don't say it is not applicable to the lighter ones, but the experience is quoted from heavier fabrics.

These fabrics can be resin treated to a residual shrinkage of 2-3% and then compressive-shrunk to a residual shrinkage of less than 1%. The mechanical action of the compresive shrinking, which produces the minor additional mechanical shrinkage of 2%, does appear to make the fabric a great deal easier to handle in the subsequent processes of cutting and sewing in the garment factory.

What else it does to the fabric is a question that needs further exploration, both in practical use and in laboratories.

Cotton Choice Important. It remains to be pointed out that some cotton fibers will pick up resins and react to them somewhat more effectively than other fibers. The Textile Research Institute's work with fibers has pointed out that the fiber contains "soft" (amorphous) parts and crystalline parts. The crystalline parts are unaffected by the resin. The resin goes into the soft parts.

With a fiber that has more soft parts and less crystalline, you get more effective use of your resin. This is something that has to be borne in mind in the selection of the cotton and the makeup of the yarns, but how much more we can say about it is difficult for me to tell.

We are currently selecting cotton fiber so as to get a tear strength and a tensile strength in the cloth to a maximum extent consistent with the cost of the cloth. We find Vertically Integrated Mill No. 4 assuming a loss of 40% from grey goods to finished goods. This Vertical has set up a definite set of standards for the final fabric. I say standards in the plural because this Vertical has one standard for pants material, another for shirting, another for nightwear, and so on.

It is necessary in the use of standards for resin-finished fabrics to determine the end use and plan the fabric for that end use. At this point, it might be well to caution our customers that fabrics are planned for specific end uses and the retailer who sells fabrics outside their planned end use is liable to cause some difficulty to his customer.

At any rate, the standards have been set up for the end use and the mill is trying to find a cotton fiber, or a mixture of cotton fibers, that will produce the necessary strength and appearance at appropriate costs.

The problem goes back to the farmer and the cotton supply. It is unfortunate that this very rapid growth of resin-treated fabrics comes at a period in the history of cotton planting where the greatly reduced acreage restricted the available supply, and the 1958 cotton crop was considerably substandard in large areas of the country. Nevertheless, the cotton mills have produced adequate fabrics and the finisher has been able to hold the strength loss within the 40% in these particular finishing areas.

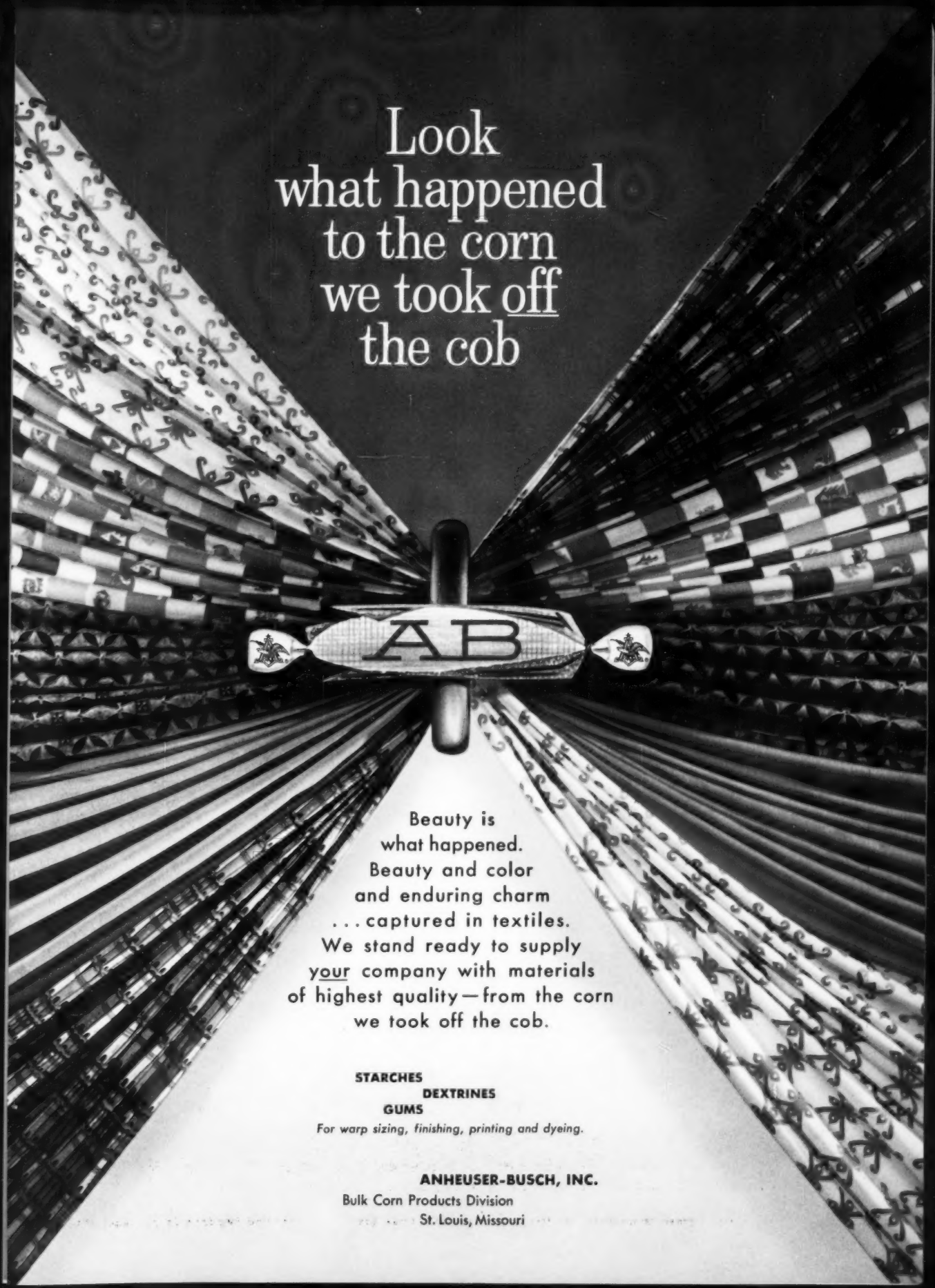
The choice of fibers, and the blending of fibers has received attention from the synthetics people as well as from the cotton farmer, and there is a definite effort to present to the cotton man the possibility of blending in some rayon because rayon is less affected by resin than cotton; that is, the strength of rayon is reduced less by resin treating than is the strength of cotton.

We have made a number of tests of this sort of blend, and so far the results that I have heard about are not conclusively in favor of the blending. As is so often the case, we find other factors intruding to complicate this picture, but this is another subject.

Planning Fabric Construction. As to fabric geometry in planning a fabric that will adjust itself more readily to the resin treating, this information is pretty general and not very specific. It is said that the softer the twist in the yarn the more easily will the resin penetrate and the less the resin that will have to be used to secure the same results (the less resin used, the smaller loss of strength). So it is generally recommended that the mill put as little twist in the yarn as can be done.

This is a contradictory state of affairs to the cotton mill, which has found that less twist gives less strength. In one breath we are asking for more strength when we set up a standard for resin treating,

(Continued on page 158)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we took off
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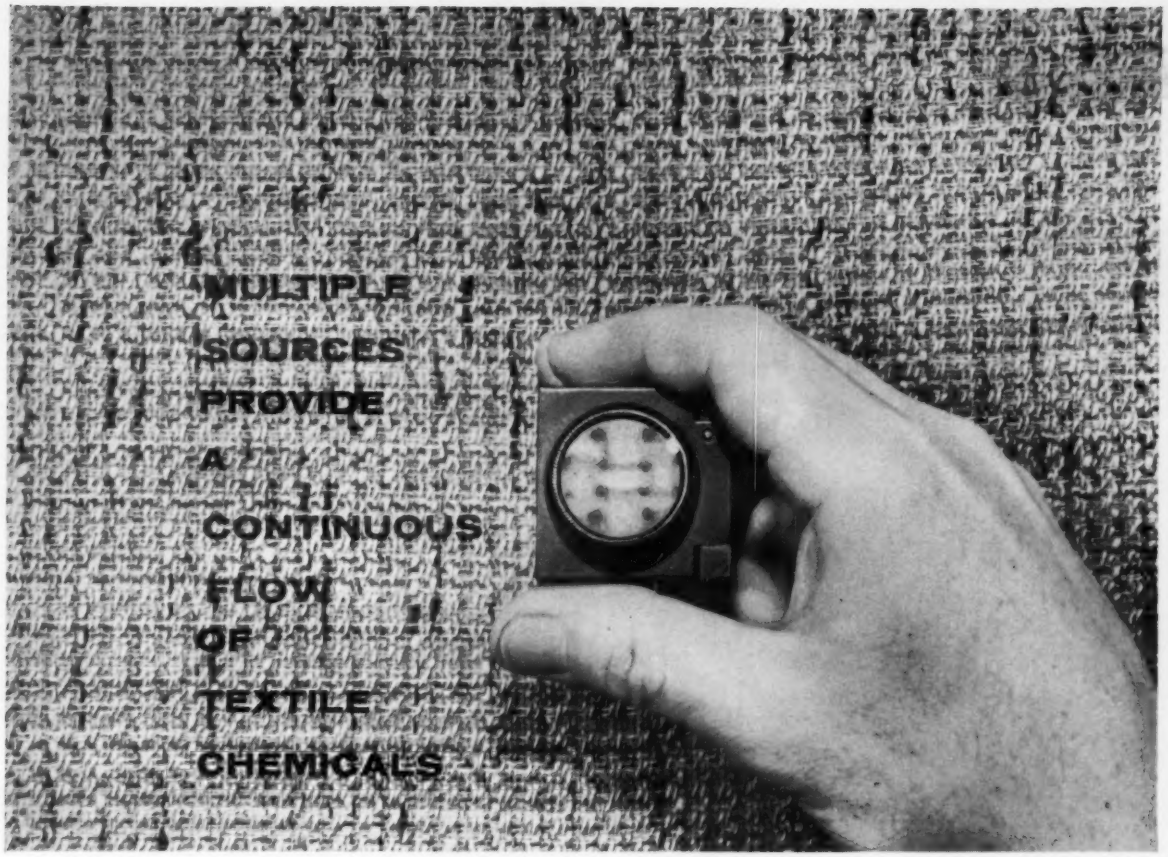

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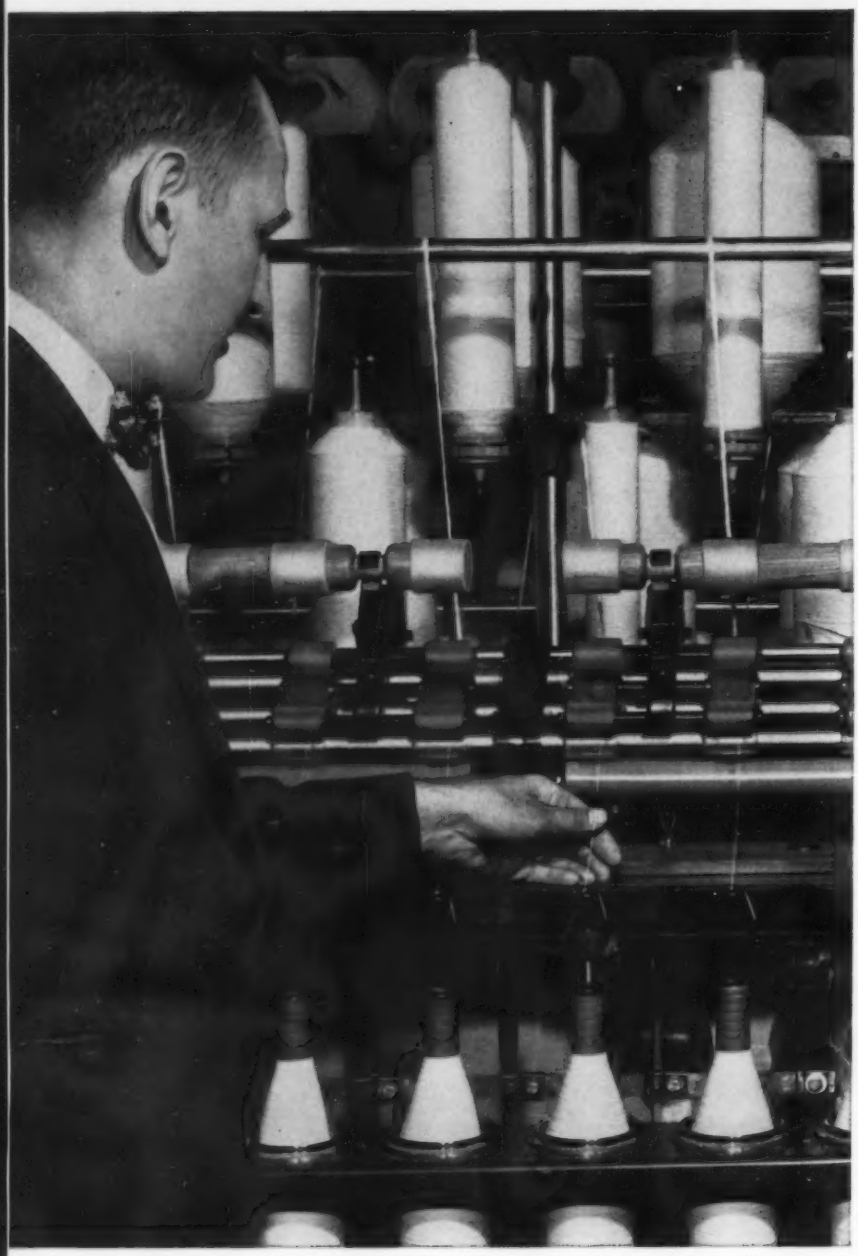
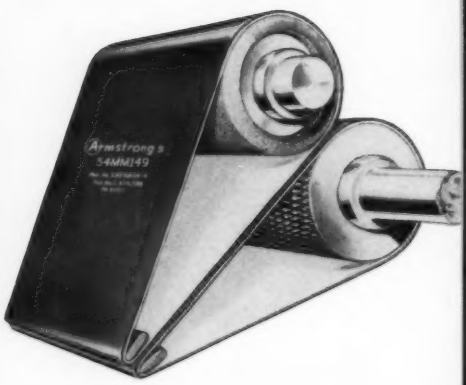


Produce



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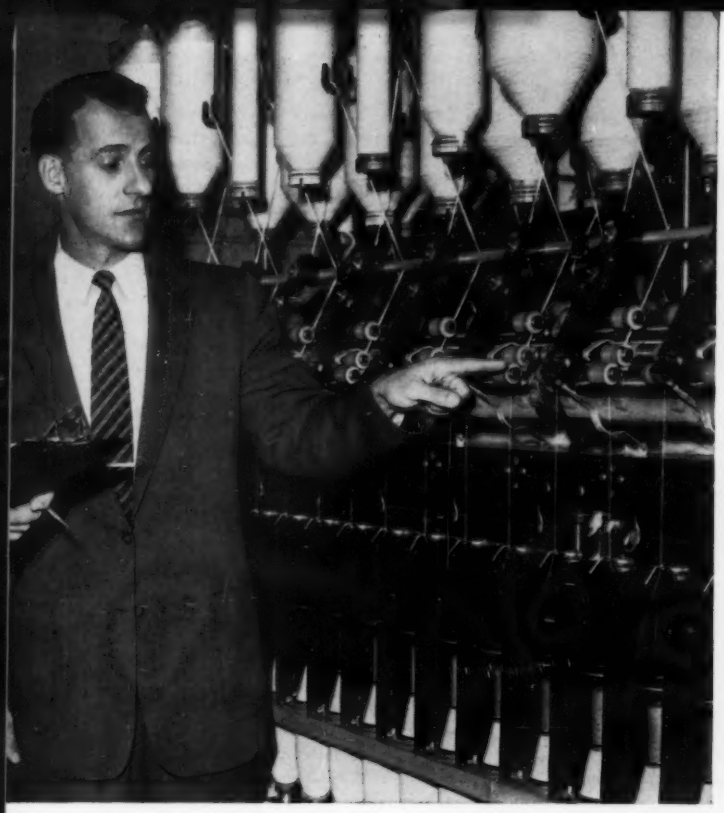

Super-flexible NO-7876 Accotex aprons insure smooth drafting action and good yarn control on systems using long bottom aprons.

quality yarn on any high-draft frame with long-life Armstrong Accotex aprons

You can rest assured you're getting outstanding fiber control—the kind that produces top-quality yarns—with Armstrong Accotex aprons on your frames. Whatever spinning system you use, there's an Accotex apron that's engineered for it.

For long apron systems, a brand-new Armstrong apron—Accotex NO-7876—is recommended. Two new synthetic rubber compounds are used in this apron to give it superiority in yarn control.

The compound used in the outer surface gives excellent fiber control. In addition, its high resistance to flex cracking and ozone assures a longer service life. The apron's inner surface is specially compounded to conform to the drive roll for accurate tracking and full power transmission. The result of this two-compound construction is better fiber control and trouble-free performance.

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On close-pin double-apron systems, Accotex NO-7075 gives top-notch performance. This black and white apron was the first to use the two-compound principle. Each apron surface has exactly the right friction characteristics to insure smooth drafting action.

A strong interliner of cotton cord is built into every Armstrong Accotex apron. This assures dimensional stability—no stretching or curling—without reducing flexibility.

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Armstrong ACCOTEX APRONS

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Wash-and-Wear

(from page 152)

and then we tell them not to put in the twist—which takes away some strength. Nevertheless, it is generally believed that the softer yarns do absorb the resins better and the net result of low twist is the use of less resin and a lesser strength loss.

The geometry of the fabric should allow its threads to relax and move about freely. The tighter the weave and the more rigid the geometry of the fabric, the more difficult it is to get the resin into the fabric in the first place, and then the more brittle we find the cloth in the final end use.

The general opinion seems to be that a flexible fabric, one with considerable give in it, is highly desirable. This would indicate that the fabric ought to be more nearly square, and you will recall that this is the direction in which Merchandising House No. 1 was headed. There has also been considerable heavying up of fabrics to take advantage of heavier yarns and their greater strength.

The standard broadcloths appear to be picking up more threads. I hear that a 136X60 has moved up to 136X64. The cotton mill people tell me that the extra four threads in the filling which are necessary for some of the more vigorous resin treatments (for higher resiliency ratings) increase the cost of the cloth by a substantial percentage.

So when we talk about fabric geometry, and go about changing our weights and yarns, we are not going to be too popular with the cotton mills. But the consumer at the ironing board has gone on record in favor of this finish, so we must persistently press for good geometry and also for the requisite yarns.

How to prolong whiteness of cotton-Dacron fabrics

■ TWO FINISHING steps have been found valuable for preserving the whiteness of cotton-Dacron fabrics, during consumer use, the Du Pont Co. reports. For best results use of both procedures is recommended.

Step 1. Expose the fabric to some caustic alkalinity. A caustic treatment such as mercerizing or the addition of caustic during scouring will improve the fabric's resistance to use-discoloration. If conventional mercerization cannot be used, a scour at 180 - 200 F for 30 minutes in a 1% - 2% caustic solution has also been found effective. Since caustic soda causes a surface hydrolysis of Dacron fibers under certain conditions of concentration, time and temperature, use of a special scouring procedure developed by Du Pont is recommended.

Step 2. Apply an optical whitening agent that has an affinity for Dacron and is quite durable. A satisfactory one is "Uvitex" ER Conc. (Ciba). Used from aqueous suspension in amounts of 0.2-0.3% (based on fabric weight), this agent can be applied from a long bath exhausting at the boil, or padding and drying at temperatures above 250 F to affect development. This product, however, should not be applied in a bath containing cationic softeners.

September deadline on summer uniform fabrics

■ MANUFACTURERS of fabrics for Army uniforms will be interested in the following U. S. Army Uniform Quality Control Office announcement (Bulletin No. 15 dated Feb. 20, 1959) regarding the summer service uniform:

1. *Summer Service Uniform*

a. The provisions of Army Regulation 670-5 have been changed to authorize *only* the following fabrics for the coat, man's tropical; trousers, men's, tropical; and shirt, man's tropical:

(1) Cloth, tropical worsted, 10.5 ounces, MIL-C-21115, Type I, Class 1, shade M-1 or Army Shade No. 61.

(2) Cloth, wool gabardine, 11 ounces, MIL-C-10176, Type I, Class 3, shade M-1 or Army Shade No. 61.

(3) Cloth, tropical, blend of 40% wool (minimum) and 55% (minimum) to 60% (maximum) polyester fiber, 9 ounces, in plain (tropical type) weave, MIL-C-21115, Type III, shade M-1 or Army Shade No. 61.

(4) Cloth, gabardine, blend of 40% wool (minimum) and 55% (minimum) to 60% (maximum) polyester fiber, 10.5 ounces, in gabardine weave, MIL-C-10176, Type II, Class 1, shade M-1 or Army Shade No. 61.

b. After 1 September 1959, U. S. Army Uniform Quality Control certificate numbers issued for cloth, tropical or gabardine in shade M-1 or Army Shade No. 61 other than the above will be invalidated, at which time all textile manufacturers concerned are requested to return the U. S. Army Uniform Quality Control System certificates to the Uniform Quality Control Office. Firms concerned with these fabrics are being given until 1 September 1959 in order that they may utilize current inventories. Subsequent to 1 September 1959 only the fabrics listed in paragraph a above, properly certified, will be authorized for use in the coat, man's tropical; trousers, men's, tropical; and shirt, man's, tropical which contain Uniform Quality Control certificate numbers. No wear out period for the uniform items manufactured prior to 1 September 1959 has been set.

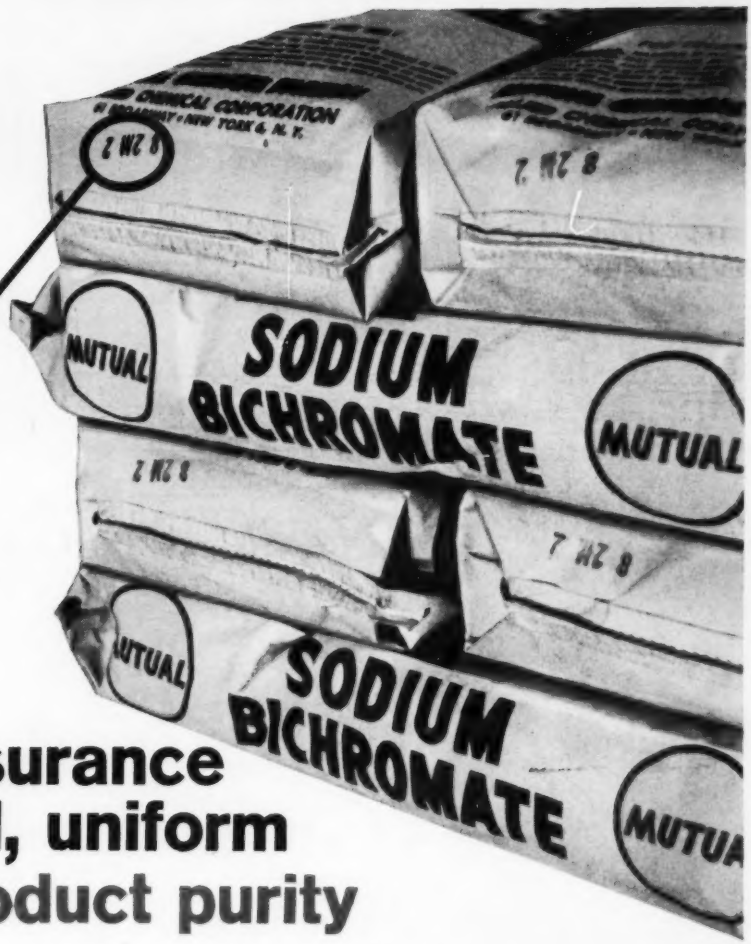
2. *Off-Shade Fabric*

a. Certified garments are being rejected by the U. S. Army Uniform Quality Control Office at an ever increasing rate due to the basic fabric failing to fall within the approved tolerance range. By applying a certificate label, the garment manufacturer is guaranteeing that the garment has been produced from specification material; therefore, the certificate number is being placed in jeopardy if the fabric shade is unsatisfactory.

b. Garment manufacturers, as well as textile manufacturers, have always been encouraged to submit samples of each bolt of fabric to the Uniform Quality Control Office for shade evaluation. Garment manufacturers are also encouraged to submit samples of all fabrics in all shades from which they are manufacturing uniforms.

c. Textile manufacturers are encouraged to periodically submit samples of fabric for which they are certified together with a laboratory test report from their own quality control departments so that a better control can be effected.

82M2



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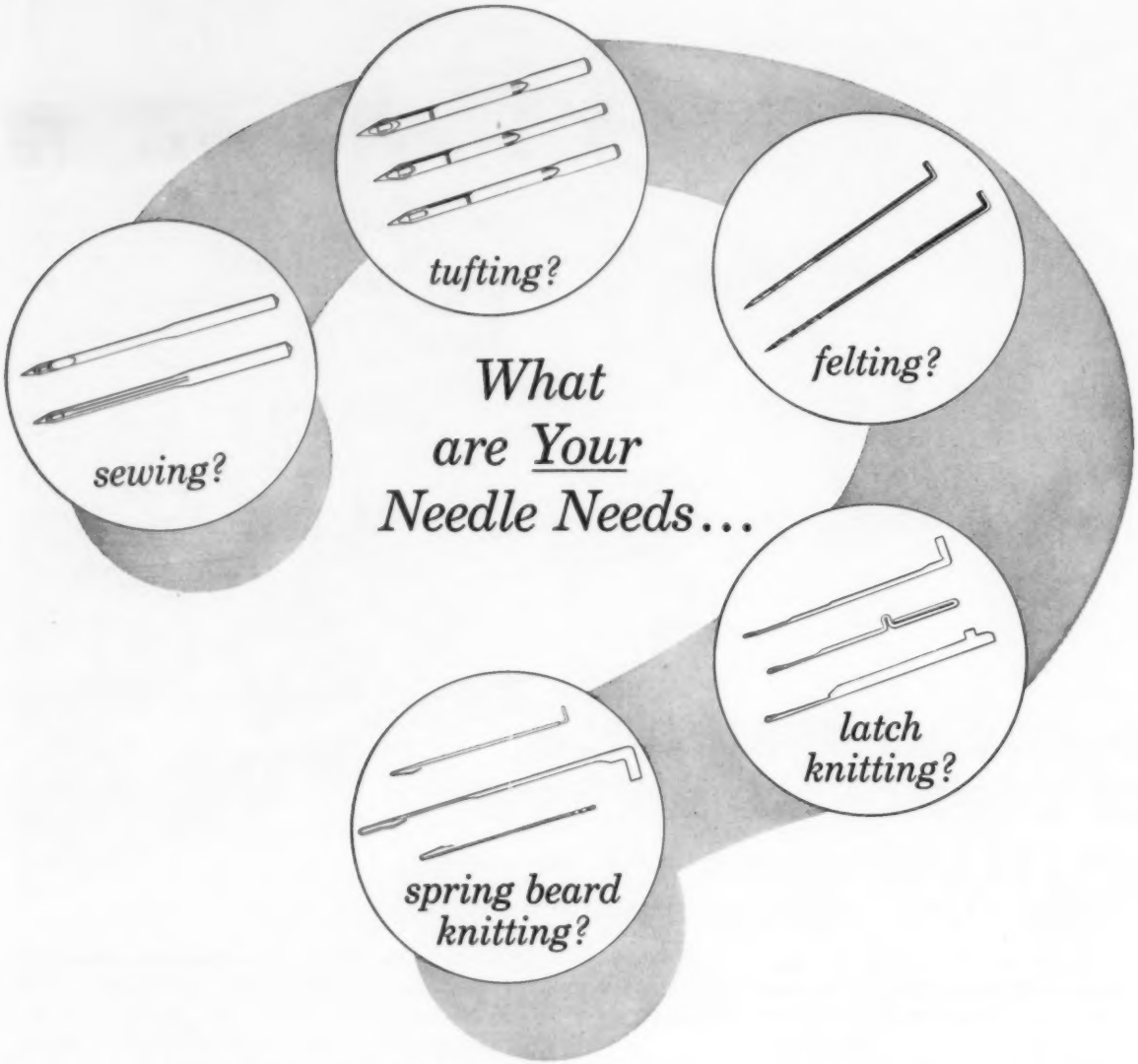

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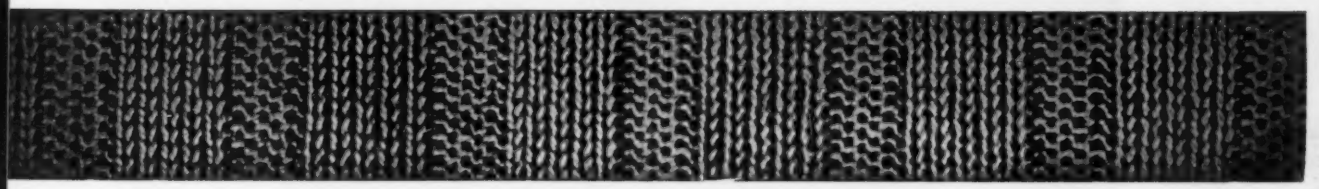
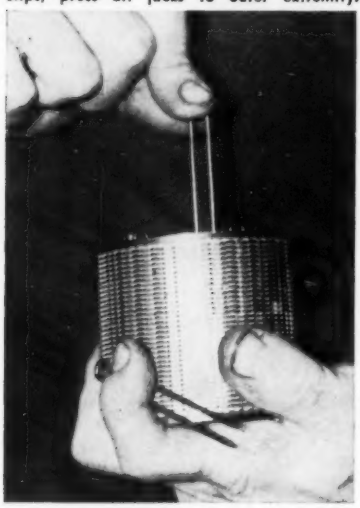


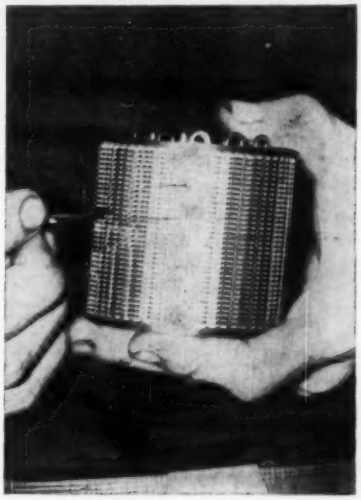
To set pattern in drum, pull out all "U" clips, press all jacks to outer extremity.



Flexible Pattern Drum

offers advantages on SCP and SCOP knitting machines

Starting with No. 1 vertical row of jacks, press all unwanted jacks to inner extremity.



by Winston Shewmake
Exclusive

NEW self - contained pattern drums for SCP and SCOP knitting machines, which have been under test and experiment in a number of mills, have aroused much interest among those manufacturers of solid color socks who have tried them.

This interest is not surprising, since the cost of changing patterns on this type of machine is largely chargeable to the continual purchasing of pattern disks for new or additional patterns. The new pattern drum completely eliminates the cost of pattern disks.

This self-contained pattern drum consists basically of three main components: (1) a ratchet wheel with 56 teeth and an idler notch; (2) a cylindrical drum with 34 horizontal rows of selection jacks, 56 jacks to each row; (3) a crown which presses the original friction brake and prevents unintentional multimovement of the drum.

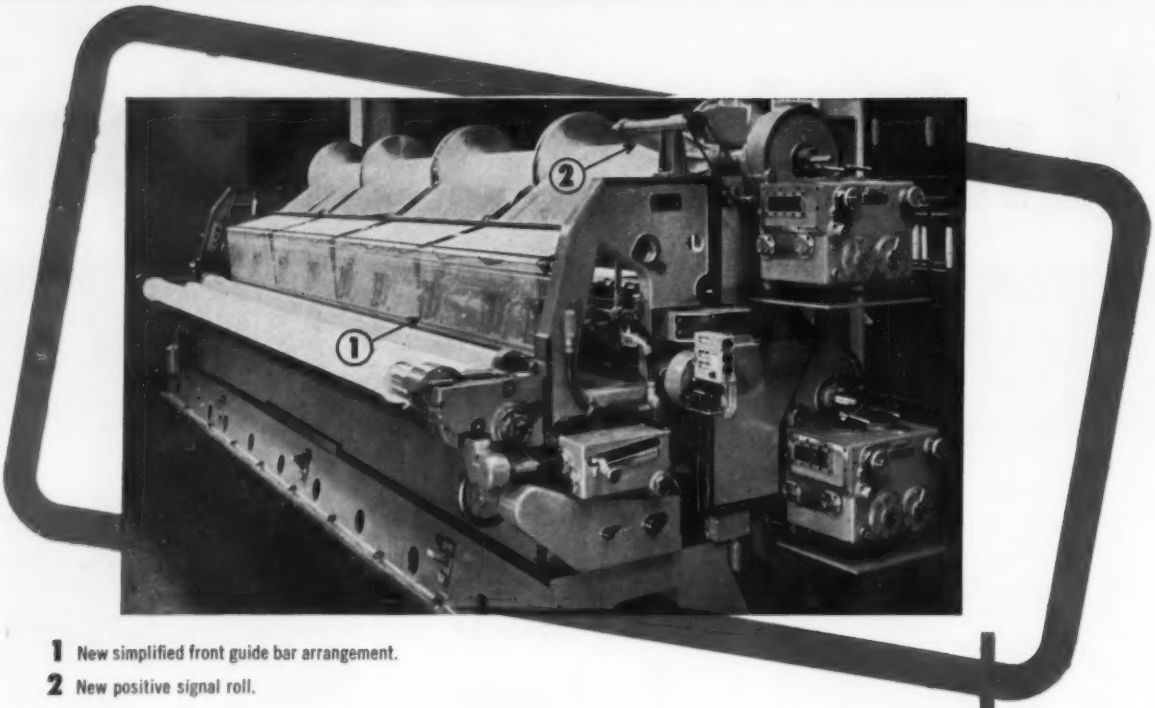
Many advantages offered by this drum are of interest. One of the most outstanding advantages is the complete elimination of the conventional pattern disk, and of course the cost involved in the purchase of these disks. The self-contained drum utilizes no disks. Instead, individual drum jacks are used and reused, and are never removed from the cylindrical drum.

These drum jacks are held in place, either "in and not in operation" or "out and operating," by fourteen "U" clips. Each clip secures four vertical rows of jacks (see accompanying illustrations).

By having drum selection jacks arranged in such a manner and secured so easily by the "U" clips, either in or out, pattern set-up on the pattern drums becomes not only cheaper due to the elimination of disks, but is also remarkably faster, thereby saving a considerable amount in labor cost.

Setting the Pattern. To set a pattern into the new self-contained

(Continued on page 164)



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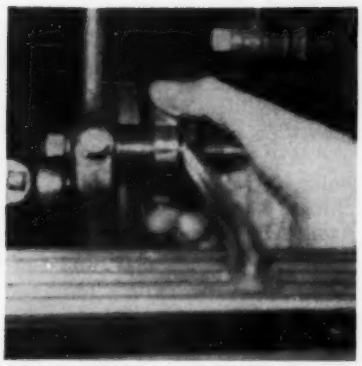
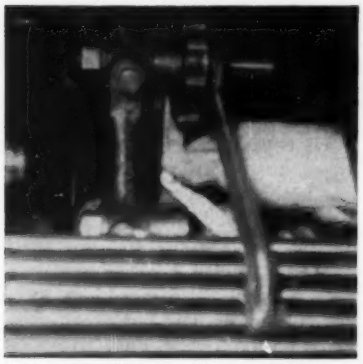
Don't Overlook Basic Settings for F-F Machines



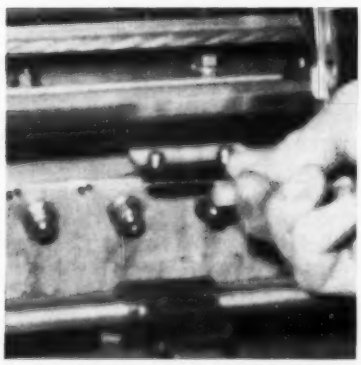
Adjust press rollers against cam round by turning rollers until each feels the same.



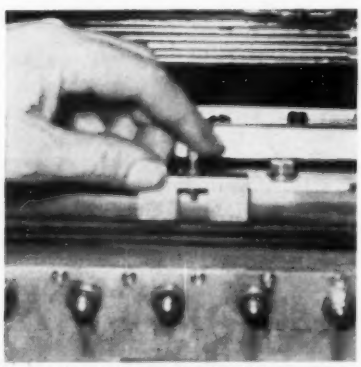
Feeler gauge between roller and cam round adjusts regulator bearing stud on press arm.

Set needle bars same distance from table; set each bar lightly against a No. 2 gauge.

The horizontal setting of the knockover bars should be made using basic gauge No. 4N.



Accurate setting of height of the knockover bars is made by using set gauge No. 10B.



The height of the needles should be properly adjusted by use of a standard height gauge.

by William D. Frye
Exclusive

ONE important problem in a full-fashioned mill is to get a high percentage of first quality work plus top production. This will not come about by wishful thinking but by good management and supervision, a healthy attitude among the personnel, a constant vigil by the fixers, and hard work by everyone when the going is rough.

Every mill has some sort of weak link in the knitting room. It may be a different problem in one than it is in another.

If we could suppose for just a minute, we might picture a mill with perfect management, fixing, and knitting. Of course this dream will never come true for any mill, but the one who comes nearest achieving this goal will be the one who strives daily and works toward the objective.

One important factor in achieving this goal lies in keeping the machinery in good condition. Stockings are made on a precision machine that will work best when the temperature is constant, the moving parts are lubricated regularly, and all parts are set to gauges according to the manufacturer's specifications.

Usually, when you find a machine that gives the outward appearance of being well taken care of but runs badly, the trouble lies in the basic settings. Some of these settings are: press, needle bar, catch bar, knock-over bar, welt bar, and narrowing mechanism.

On a high-speed knitting machine with as many as 32 sections working in unison, each part must be set perfectly to gauge. Cams must be set on the scribe marks so they will work together. Each roller arm must be set at the roller adjustment screws to get the same amount of movement at each section over the entire length of the machine. It is very important that each roller be level in relation to the others.

Press Setting. The press setting is one of the most abused and

neglected adjustments on the knitting machine. Let us take, for example, this one basic setting that is usually neglected and go through the proper procedure in making the adjustments necessary to put it in proper working order.

For length variations the needle bars will be moved in and out. This is a necessary evil; however, if the press setting is correct to start, a small amount of movement will not affect the running condition of the machine.

On a Lieberknecht machine, first unhook the springs on the press arms. Work on one half of the machine at a time. Next, with the sinkers run out half way across the section, take the main regulator roller off. This will allow the press rollers to position against the press cam rounds.

Set each roller lightly against the cam round by turning each one with the hand until each is adjusted to the same position against the round. When the position is right, each roller will bear against the cam with the same amount of pressure. Put the regulator roller back and hook the springs into position.

Next, with a feeler gauge between the press roller and cam round, set each roller to the feeler gauge, adjusting them at the regulator bearing stud at the bottom of the arm. Next, set each needle bar lightly against the No. 2 gauge. The regulator roller will have to be taken off once more to make this adjustment.

Set narrowing fingers with basic gauge 11A.

This completes the setting for the press. The only time there will ever be any need for deviating from these settings will be in adjusting the needle bars for length variations.

Stress Basic Settings. The big problem is not in knowing what should be done for any special situation, because erector's manuals and other literature are available to cover almost all machine troubles. The trouble lies in the "wait and see attitude." "Wait and see" if a particular narrowing hole will run itself out of the machine (which it will not do). Or "wait and see" if a job (which should be fixed now) will be fixed on another shift.

The reason for stressing basic settings on a knitting machine is the importance of having a firm foundation to start from when working on the machine. As long as these settings are right, most troubles on the machine can be worked out easily enough by concentrating at the obvious trouble spot.

Of course, it takes the effort of everyone in the mill to make good quality work. Although top quality work is made in the knitting room, it is still possible for it to come out of the seamer room as poor quality stockings. The work can be picked, torn, and handled badly between the two.

But if it comes out of the knitting room as poor quality, it will remain so at the finish.

Pattern drum

(from page 161)

drum, first remove the cylindrical drum from the machine. It is not necessary to remove the ratchet wheel. Next pull out of the drum all of the securing "U" clips and press out all of the jacks to their outward extremity.

Beginning with No. 1 vertical row of jacks and continuing through No. 56, press in to their inward extremity all unwanted jacks. Securing these jacks, both those that have been pressed in and also those that have been left out, is accomplished by inserting the "U" clips.

This locks them into place and the pattern drum is ready to be placed in position on the machine.

If the designer should make a mistake and press in or leave out some undesirable jacks there still has been no cost incurred in materials. Usually, this would require throwing away pattern disks in which the mistake had been made and setting up new disks in their place.

With the new drum, correction of a mistake merely entails pulling out the jack that was accidentally pressed in or pressing in the jack that was left out. Not only is this method convenient for correcting mistakes in pattern set up, but also for making variations in existing patterns without the use of new or additional pattern disks. Therefore, the new self-contained pattern drum incorporates much flexibility in pattern changes.

Another advantage of the new drums is the elimination of aligning shims between disks. Alignment between the pattern drum jacks and the jack cam levers on the machine is perfected in the precision manufacture of the unit. Alignment is always true, and once the drum has been placed onto the machine, it is never necessary to remove it to align the horizontal rows of lugs for "tracking."

Durability is another feature of the self-contained pattern drums. All facing parts are polished and hardened, and wear on these parts is practically nil.

Installation of the new drums onto the knitting machine is simple and final. With the exception of a slight resetting of the existing ratchet pawls on the machine, installation consists merely of removing the old conventional pattern drums from the pattern drum post and inserting the new unit onto the post.

The initial cost of the new pattern drums is considerably more than standard equipment, so the new drums are of primary advantage on machines where frequent pattern changes are made.

NOTE: The author has described parts according to their similarity to existing conventional parts or as to their purpose, since no parts catalog for this item has yet been published, to our knowledge.

Tips for Warping and Creeling Metallic Yarns

Extract*

BECAUSE most warp knitting produces relatively "hard" fabrics from fine to medium continuous-filament manmade yarns, and because decorative effects on these grounds may quite effectively be produced using yarns of diameters different from the grounds, unsupported Lurex is quite suitable as a decorating yarn for such cloth. Lurex MM is the most suitable type to use for tricot and raschel work; the gauge selected depends on strength requirements while knitting, and the width selected depends on the needles per inch of the machine.

A wide range of fabric types may be so produced: laces and nets for dress goods, blouses and their trimmings, sport shirting, ladies' underwear, elastics, and curtains.

Warping. There are several ways to prepare narrow beams (section spools) for warp knitting machines; where only a few ends of Lurex are to be knitted as decoration across the machine width, warping may be by-passed and the ends fed directly from spools into the machine.

Regardless of the method used, three points should be observed:

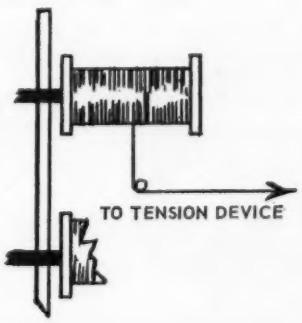
1. Preserve extensibility — do not overstretch.

2. Maintain equal tension on all ends being warped. This can be accomplished by the use of consistent sizes and weights of Lurex spools and cones on the creel or by compensating for different package sizes by tension adjustments so that all ends have the same tension. Variable tension from Lurex, end-to-end, can cause tight and slack ends in knitting.

3. Select proper beaming. This should be done as usual for any knitting where more than one size of yarn or type of stitch is to be employed. Lurex may be warped on the same beam with other yarns if the diameters of all yarns are equivalent and the amount of knitting take-up on all ends is to be the same (e.g., 1/100" Lurex MM may be warped on the same beam with 75-denier acetate). Otherwise, Lurex should be prepared on a separate beam from other yarns. When warping Lurex on the same beam with other yarns, the tendency of the other yarns to tighten up (shrink) on the beam should be considered; Lurex MM has some tendency to loosen up on the beam.

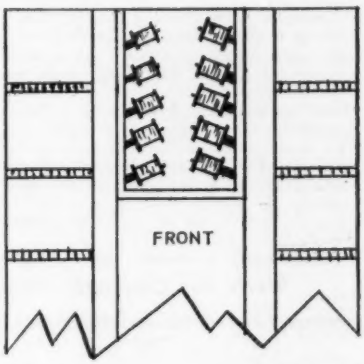
Creeling

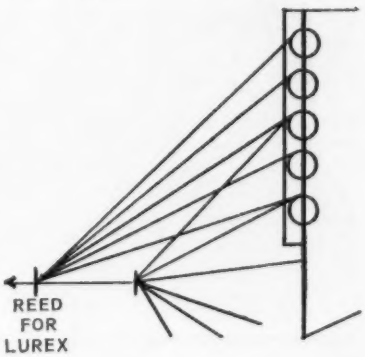
1. Cone Creels. Magazine creels set up for cone creeling may be adapted for creeling Lurex spools by stripping off the cone holders and placing the Lurex spools on the shafts. Unrolling may be effected by setting a snubbing bar about 6" away from the spool, positioned about halfway between spool flanges:



The snubbing bar positioned as described will effect unrolling and prevent the yarn from digging in between flange and yarn envelope.

When a small number of Lurex ends are to be warped with other yarns on the same beam, a simple rack can be fitted to the front of the creel:





It is recommended that cone creels adapted to run Lurex spools be run under the following conditions:

a. Keep speeds moderate to prevent overstretching and overrunning of spool when machine is stopped.

b. Adjust for minimum tension equally on all ends. It is often desirable to remove most of the weight from a conventional tensioning device and add a plush pad so that Lurex passes through

*From Lurex Technical Service Bulletin XI, published by the Textile Fibers Department, Dow Chemical Co.

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Features:

- Automatic Loop Opening Device (2 or 4 selvages).
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- Production up to 200 linear yards per minute (in parallel operation).
- Multispeed motors drive up to 4 knives individually.
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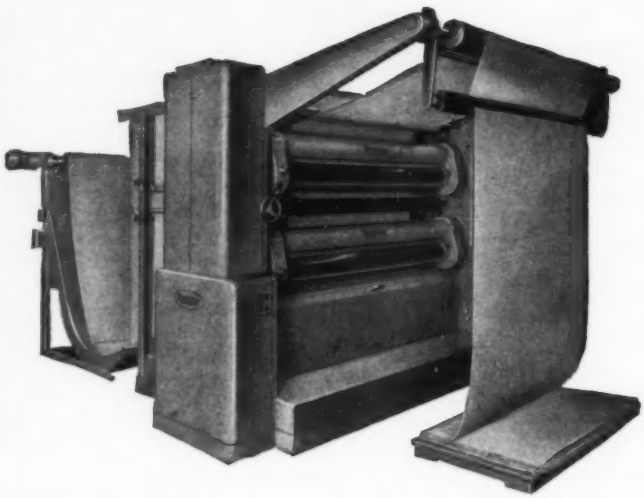
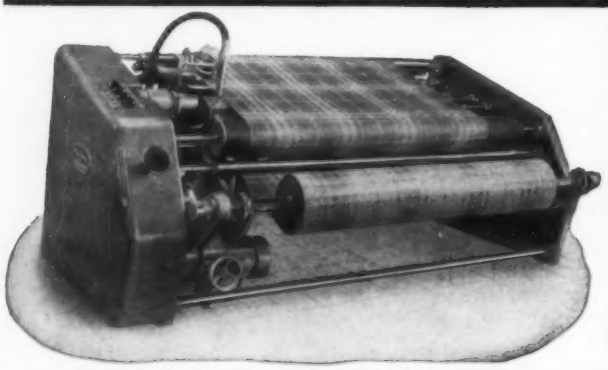
- Exceptionally sensitive detector automatically stops and starts each knife motor individually — in sequence — permits shearing to within 8" of seam.
- Central control for all cleaning and shearing settings and adjustments.
- Automatically controlled shear cylinder lubrication.

Write for Complete Details





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- Trims only (one or two) selvages—will not damage nubbed or other fabric textures.
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it after leaving the device.

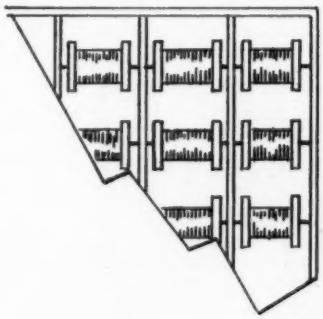
c. Never draw the Lurex "over-end" from the spool. This can add twist, increase tension, and detract from the flat lay of the yarn.

d. Lubricate pins on which Lurex spools rotate to minimize tensions on the yarn by allowing free rotation.

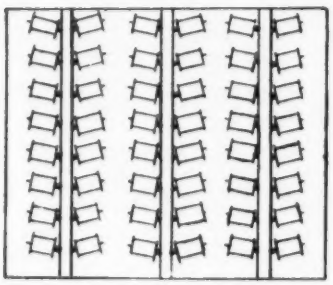
e. Place washer (creel button) on pin beneath spool to further minimize drag; wooden bushings at base of pin should be avoided as they can create considerable drag on the rotating spool.

2. Pin Creels. Conventional silk-system inclined-pin creels are readily used for warping Lurex from spools; they are designed for unrolling the spool.

Simple creels may be readily constructed in the mill to accommodate Lurex:



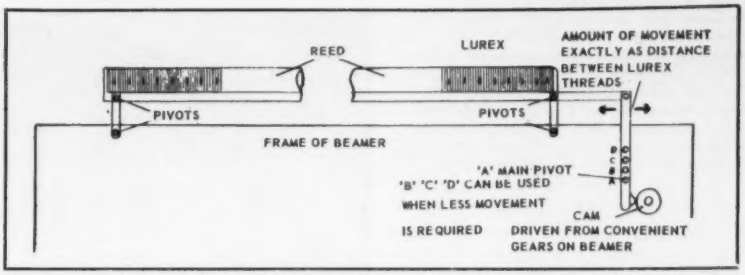
or



These creels do not require tensioning devices but attention should be given the same recommendations as listed for cone creeling (speed, tension, over-end draw, lubrication, washers).

Forming the Warp

1. Warping Reel. Lurex may be warped onto conventional three-yard circumference warping reels. It is a good practice to start reeling a short distance away from section pins as Lurex can tend to pile up if it touches the pins. The amount of reel revolutions required to make a warp without occurrence of "digging-in" should be noted. For 1/64" No. 150 Lurex MM, 300 revolutions make a good warp. Lurex can tend to sag on warping reels if stored too long on the reel; it is recommended that warps made in this manner be beamed immediately rather than allowed to stand on the reel overnight.


REED
LUREX
AMOUNT OF MOVEMENT EXACTLY AS DISTANCE BETWEEN LUREX THREADS
PIVOTS
PIVOTS
FRAME OF BEAMER
'A' MAIN PIVOT
'B' 'C' 'D' CAN BE USED WHEN LESS MOVEMENT IS REQUIRED
CAM DRIVEN FROM CONVENIENT GEARS ON BEAMER

A way to avoid ridges is to equip the beamer reed with an oscillating device like this.

2. Beaming. Generally, it is quite satisfactory to beam directly from the creel. Following are some guides which are well suited to beaming Lurex:

a. Select a light weight beam so that overstretching in the machine due to excessive drag on the warp will be avoided; this is important because Lurex warps generally contain fewer ends than do warps made from other yarns. Flanges should be no greater in diameter than required to hold about a 1000-yard Lurex warp.

b. When the number of ends per inch of Lurex are under about 20 per inch, ridges may tend to form during beaming; this will create a slack and tight end condition in knitting. Ridges may be prevented from building up by inserting sheets of beaming paper at intervals of from 15 to 30 yards during beaming depending on the tendency of the warp to become ridgy. Another method of avoiding ridges is to equip the reed of the beamer with an oscillating device as illustrated in an accompanying diagram.

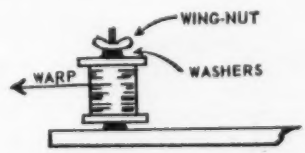
c. Reed Lurex in a dent by itself when making a warp containing other yarns. This will prevent rolling over of two dissimilar yarns.

d. Select the proper beam width for the machine or section of machine being used and space out ends of Lurex according to their use in the fabric, so that Lurex will pass from the beam to the needles in as straight a line as possible; this will prevent undue strain on the Lurex and minimize breakage or overstretching.

e. The optimum way to handle Lurex breaks in warping is to lay both ends of the break on the beam without knotting. When the break comes up in knitting, a "leader" may be fed into the guide until the end of the beam is long enough to enter. If it is advantageous to avoid this, however, a simple overhand knot may be tied.

Feeding Lurex Directly To Machine. Where only a small number of Lurex ends are to be knitted, it is advantageous to feed the machine from a creel directly. Such creeling may be set up on a simple rack. Creels may be set up behind the machine but should not be bolted to the machine frame, as vibration may "jiggle" the yarn loose from the spool.

If loosening-up tends to occur even if this precaution is taken, then a pin creel should be used and fitted with washers and a wing nut to apply a gentle but firm tension.



When feeding a small number of Lurex ends directly from a creel to the machine, uniformity of feeding speed may be improved by passing the Lurex ends around the warp which it is to accompany; two or three wraps around the warp is sufficient.

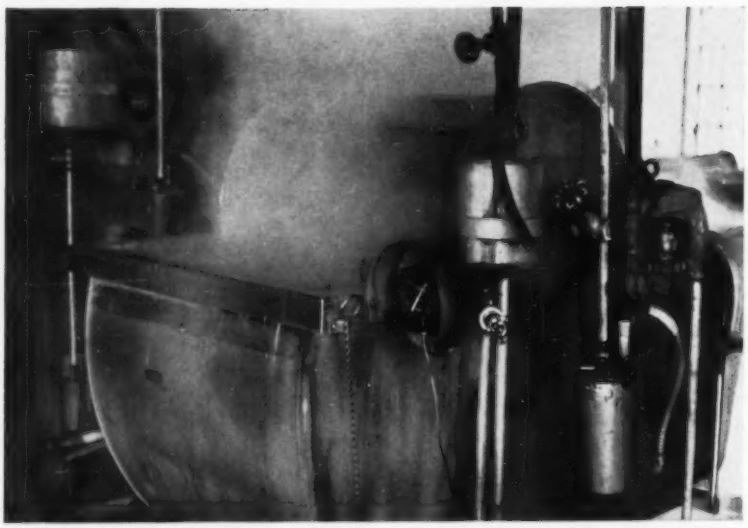
At Color-Knit Dyeing Corp., these tumble dryers also serve as heat-setting units. To prevent "cold spots" and to insure uniform heating, the sweaters are tumbled in clockwise and counterclockwise directions for 45 seconds each, with an 8- to 15-second static period between. After the cycle is finished, the sweaters are allowed to cool gradually, to avoid any chance of setting creases.

Setting Textured Nylon Sweaters

Relaxation and setting are the most important operations in dyeing and finishing. This is how they are carried out at Color-Knit Dyeing Corp.

Staff prepared

Exclusive



After the setting operation, dyeing and finishing are carried out in paddle dyeing machines, such as this one, which accommodate smaller lots. Even though dyeing is carried out at the boil for a prolonged period, shrinkage of the textured nylon is insignificant. Temperature control is important when reaching dyeing temperature, to prevent unlevel dyeing; and in lowering temperature after dyeing, to prevent formation of creases in the nylon sweaters.

IN KNITTING and finishing sweaters of textured nylon yarn, there are two basic routes in commercial practice today:

Route No. 1

1. Knitting
2. Wet relaxation
3. Sweater make-up
4. Setting
5. Dyeing and finishing

Route No. 2

1. Knitting
2. Relaxation and setting
3. Scouring, dyeing, and finishing
4. Sweater make-up

While differences exist between the two routes in the sequence of operations and in the conditions under which relaxation and setting are carried out, the purpose of each route is to produce a sweater, knitted to size, which possesses such properties as dimensional stability, shape reten-

tion and drape, proper texture, and softness of hand.

IN THE PRESENT stage of utilizing textured nylon yarn for sweater apparel, knitting and finishing techniques have become well established, and defects which occur in a given operation are quite readily identifiable. In knitting, many defects are caused by a failure to observe simple rules which are basic to knitting, or by a failure to follow procedures which experience has shown produce best results with textured nylon yarn.

And essentially the same can be said for dyeing and finishing, where procedures must be carried out with due regard to the properties and characteristics of the textured nylon yarn. To do otherwise, through shortcuts, improper control of conditions, and the like, can only lead to defects and sweater imperfections.

Among defects of a more fundamental nature, there is one which concerns yarn shrinkage. Actually, two possibilities to the problem exist: (1) where the finished sweater is larger than its predetermined size, and (2) where the finished sweater is smaller than its predetermined size.

In an analysis of either of these possibilities, three operations at once come under examination: knitting, relaxation, and setting. But one important factor, quite aside from these operations, must not be overlooked: the physicochemical behavior of the textured nylon yarn, and its relationship to shrinkage and ultimate sweater dimensions.

BUT FIRST, some discussion of the knitting operation is necessary, together with a much more detailed discussion of the relaxation and setting operations. The purpose of this paper, however, is not to prove the superiority of one method of shrinkage over the other, but merely to discuss the relaxation and setting procedures (Route No. 2 above) as they are carried out in combination at Color-Knit Dyeing Corp., Elizabeth, N. J., with a brief discussion of some of the attendant problems and how they are overcome.

As everyone knows, textured nylon yarn is knitted under high tension, which must be kept uniform from lot to lot and from machine to machine. While relaxation and setting bring about reduction in yarn dimensions, the amount of this reduction or shrinkage can be accurately predetermined; for unlike the wool fiber, which can continue to shrink under the influence of felting, textured nylon reaches an absolute point beyond which no further shrinkage can occur.

UNDER ROUTE NO. 1, outlined above, relaxation is carried out as a separate operation. It is normally done in about 10-15 minutes at a temperature of about 100 F. Scouring can be carried out simultaneously, if desired, in which case a detergent and other ingredients are added to remove lubricants, soil, stains, etc. Aside from the normal precautions, which must be observed to prevent creases, this operation is a simple one, during which the knitted pieces begin to assume a textured appearance.

The setting cycle, which follows sweater make-up under Route No. 1, when carried out in equipment designed specifically for this purpose, takes place in a matter of minutes at a temperature of about 250 F. Normal precautions are taken in loading to prevent creases. The temperature is automatically controlled, both in reaching the desired level and in cooling the load.

UNDER ROUTE NO. 2, which is followed by Color-Knit Dyeing, relaxation and setting are performed in one operation. Although a temperature of 240 F is maintained in the tumble dryers, which is somewhat lower than in the above process, the time is extended to 15 minutes and longer if necessary.

This extended time, together with the reversible action of the tumble dryer, insures uniform heating throughout the load. The temperature is automatically controlled, of course, being raised gradually at the beginning of the cycle and lowered slowly at its end. Relaxation of the fiber takes place at the lower temperatures, at about 160 F, while setting is accomplished at about 240 F.

The thermometers and electrical heating elements of the dryers are checked periodically, and all dryers must be kept in good condition to prevent variations from one dryer to another.

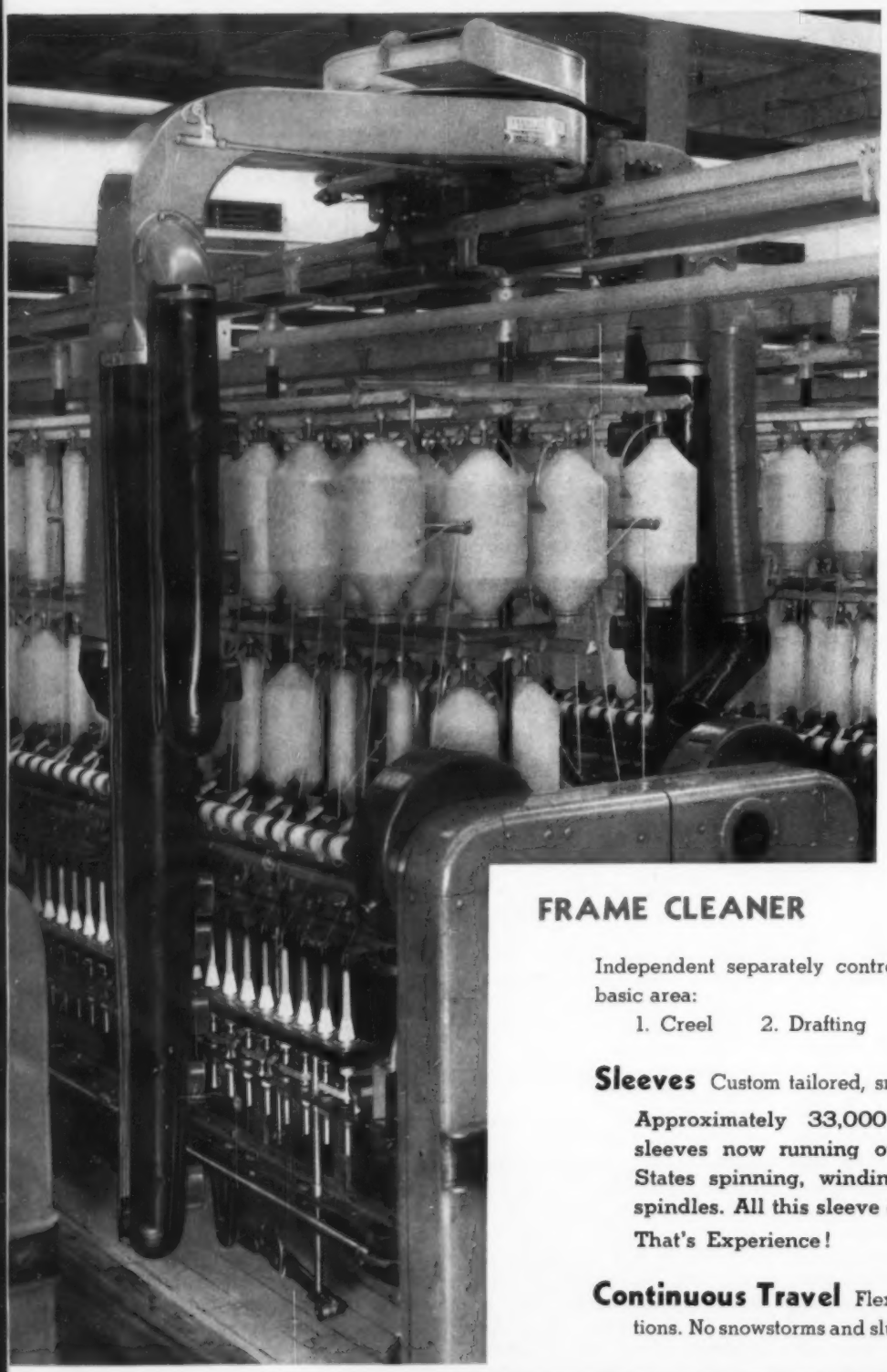
If the temperature is not accurately controlled, or the setting cycle not rigidly adhered to, two defects can occur: (1) Excessive temperature can cause nylon discoloration—yellowing of whites or dulling of the bright dyed shades, or (2) If temperature is insufficient, it can cause incomplete yarn shrinkage. In the latter case, finished sweater dimensions would be larger than predetermined, for in the dyeing operations which follow the amount of shrinkage is insignificant.

CONTROL over setting, whether it is carried out in a shorter cycle at a somewhat higher temperature or in a longer cycle at a lower temperature, is essential. And proof that this important operation has been properly carried out can be determined by testing the finished sweater, which should exhibit a shrinkage of less than 1%.

Since shrinkage is an absolute quantity—that is to say that overshrinkage cannot occur—the tensions which are used in knitting must be carefully controlled. If they exceed the normal limits which experience has established for textured nylon yarn, in effect a smaller amount of yarn is used than is actually required. Thus, after shrinkage in setting, the dimensions will be smaller than anticipated. While the amount of shrinkage will appear to be greater, it is not so when calculated on the actual amount of yarn used.

To produce a sweater without defects or imperfections and of correct dimensions, strict adherence to established practices is necessary—from knitting through dyeing and finishing. Actually, the rules are simple, based in large part on the limitations imposed by textured nylon yarn. But once procedures have become established, every effort should be made to keep them constant in the interest of uniformity from lot to lot.

Parks-Cramer CTG



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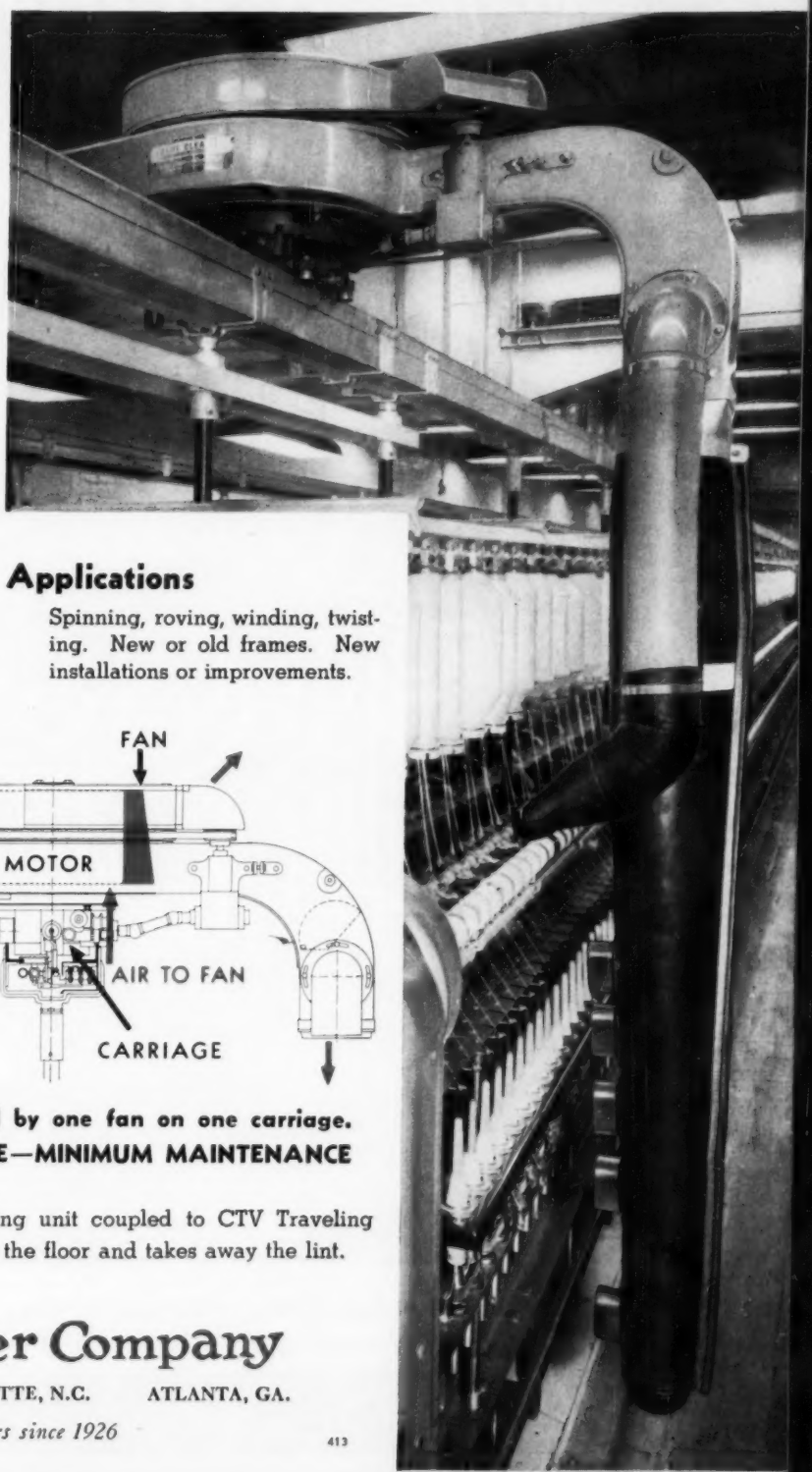
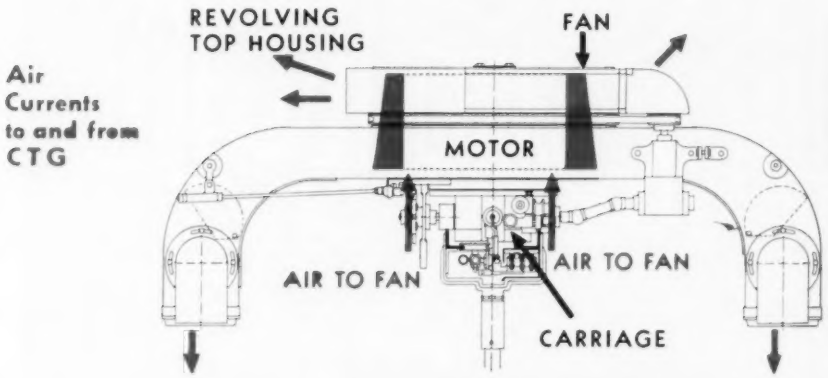
Unit cleans itself and track. Paddle fan—self-cleaning. No separate tractor. Travel direction—single or reversing. 110 or 220 volts, low amperage.



Applications

Spinning, roving, winding, twisting. New or old frames. New installations or improvements.



One motor surrounded by one fan on one carriage.
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HOW OTHERS MANAGE

How they clean rub aprons

(In the April, 1959, issue, CONTRIBUTOR No. *1136 asked for ways of cleaning rub aprons. Three replies follow.—The Editors)*

THE EDITORS:

When running alpaca blends with natural grease in the fleece alpaca, we experienced much trouble with rub aprons coating and glazing with a thick accumulation of grease and dirt every six or seven hours. Since all condensers were equipped with rubber aprons, which are impervious to water, we applied to the aprons with loom brushes a solution composed of two quarts of Oakite in eight quarts of hot water.

This solution was applied with roving ends coming through the aprons, as the eccentric drive belt slides on the pulley with the aprons empty of roving (the traction of bare rubber against bare rubber is too great a strain on the belts). The roving ends absorb the grease, and the method prevents the leather tapes from being soaked with the solution.

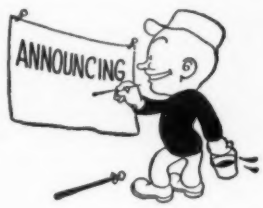
When the solution is first applied the roving ends break, wrap around the aprons, forming hard laps. But three men working fast can take care of the laps and complete the cleaning job in ten or fifteen minutes. This makes quite a lot of dirty waste but it is sent back to blending room to be added to the next blend.

For breaking the laps off the aprons in hard-to-reach places, such as under the two bottom decks, we used a stick 5/8″ x 1½″ x 60″ long with a three-inch strip of card clothing 1½″ wide securely fastened to one end of the stick—tumbler wire is best.

At stripping time, just before breaking the web at the tape doffer, the solution was applied to aprons and allowed to soak into the grease while the card was being stripped. After stripping, the flat ribbon of the web was allowed to run into aprons for a minute or two. The eccentric belt was snapped on, and the apron washing completed. Adjusting the stroke of the eccentric as long as possible, and setting aprons closer together, slows down the forming of thick deposits of grease and dirt on the aprons.

On another occasion the mill had a large order for commission carpet yarn. The dyed stock was sent to the mill, and we were not allowed to use over one per cent of oil in the emulsion. The stock was loaded with bleaching powder which coated both the tapes and

(Continued on page 177)



A Brand New Contest

Win $100

Get Busy Now – Win $100

Every kink, short-cut, time-saver, or quality improvement suggestion entered in the contest will be paid for immediately upon acceptance, and the $100 award will be made to the winner as soon as all entries are judged.

The contest rules are simple:

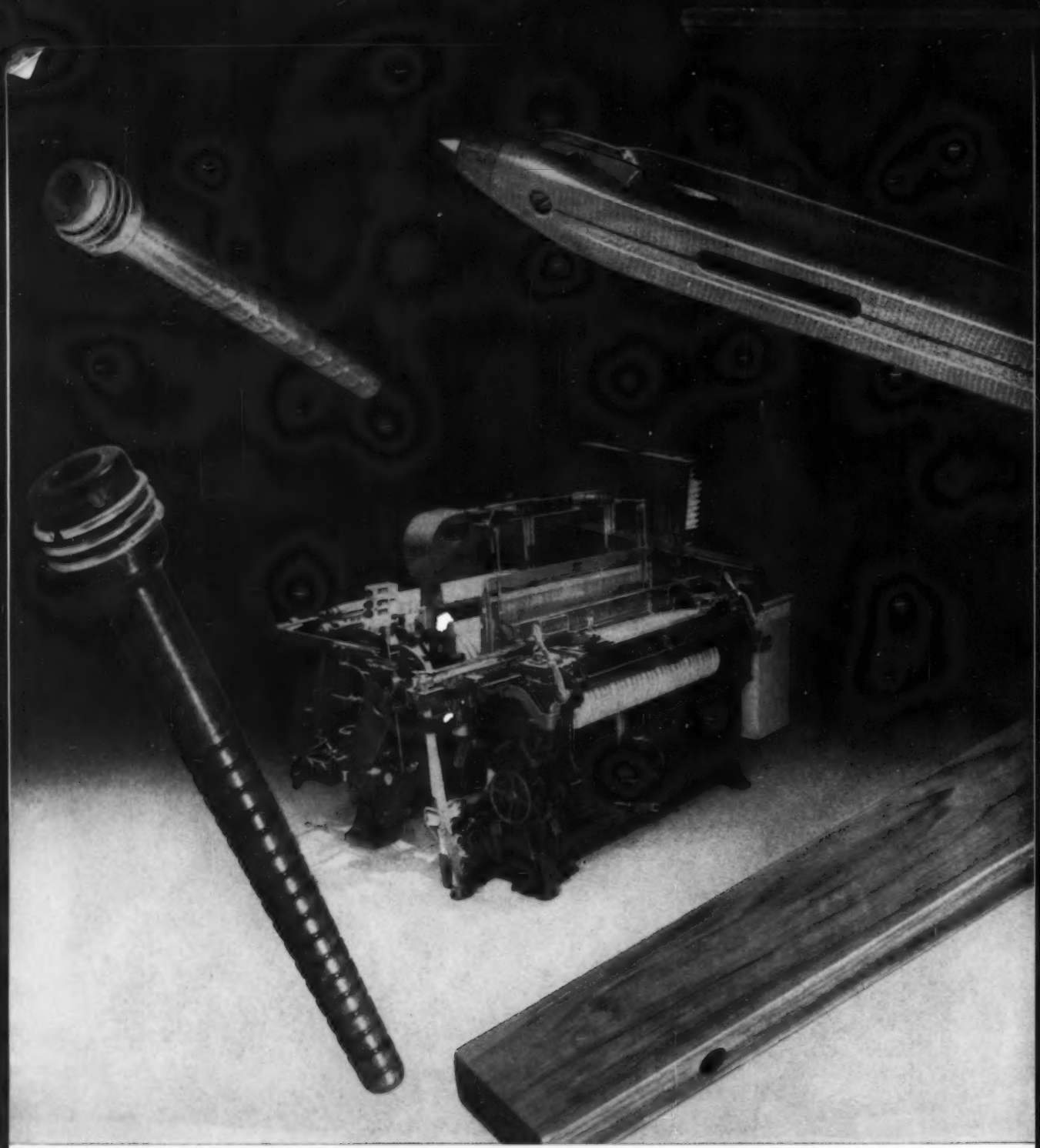
► All contributions must be postmarked not later than midnight, August 15, 1959.

► No limit to the number of entries an individual may submit in any one contest.

► All entries paid for upon acceptance—no waiting. Extra payment for photographs that are usable. Extra consideration is also given kinks accompanied by legible pencil sketches or drawings.

► Entries must not have been published previously and must not be submitted to any other publication.

► Send your contest entry to: The Editors, TEXTILE INDUSTRIES, 806 Peachtree St., N. E., Atlanta 8, Georgia.



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Alcohol Insoluble	3.7%
Moisture	53.8%
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rub aprons, causing a serious loss in rubbing after five or six hours operation. On this accumulation we used a milder solution of one cup of the cleaner in eight quarts of warm water. This quickly restored the condensing capacity of the aprons.

For dye stains on rubber aprons, I recommend a liquid soap. Apply it full strength to all the aprons, then let the aprons stand for about thirty minutes.

Rinse with very warm water with roving coming through the aprons. In some cases this operation may have to be repeated.

Ridding rub aprons and tapes of dye stains is often a difficult matter, and sometimes it is necessary to run about 100 pounds of clean, white stock or waste through the card. Wet the stock thoroughly with soapy water or use a strong detergent in place of soap.

CONTRIBUTOR No. 1138

THE EDITORS:

There are several methods of doing this, however, the most simple and about the easiest and best method is using Oakite and water. Some mills use just a plain detergent and warm water. You will also find some mills, in very severe cases where the grease emulsion and dyed stock has built up on the aprons, use a fast-evaporating petroleum solvent. However, we do not recommend this except in very severe cases.

THE DAYTON RUBBER COMPANY

THE EDITORS:

Clean and wash rub aprons when stripping.

Run the stock out completely, including the condenser, and apply neatsfoot oil to the rub aprons with a brush, paint sprayer, or a garden sprayer. Allow the card to run for two or three minutes to give the oil a chance to penetrate the rub aprons and loosen up the tar and grease. This method keeps the aprons pliable and soft, by reconditioning the leather, and results in a well-rubbed sliver and a uniform yarn.

Run waste spools in the card until the sliver becomes clean. This roving waste then may be used in the hopper of the feed box in very small quantities. In some instances it will have to be sent back to the picker room or dye house to be used in darker-shaded lots.

Card rub aprons do not necessarily have to be cleaned at every stripping interval. The cleaning cycle depends on the kind of stock being carded, dye colors, change overs, and types of wool being processed.

For rubber aprons a solution of lukewarm water and Oakite is an excellent cleaner. It is applied in the same manner as neatsfoot oil, but is much more economical to use. Avoid using hot water, for this might blister a rubber apron, ruining it entirely. Water is not recommended on a leather apron for it might dissolve the glue on the apron seams and render it unsuitable. It also will harden or stiffen the leather.

Some dyes, such as black, will occasionally penetrate a rubber apron and if not thoroughly cleaned will stain the next lot if it is of a different color. Turpentine may be used for this type of cleaning. It is put on the top apron of each bank with a cloth, the card run for a few minutes, and then the turpentine rinsed off with Oakite and lukewarm water. This procedure is not detrimental to a rubber apron; I have used it many times.

On some stock it is advisable to clean the aprons once every shift while the card is running. Doff the spools, wash the aprons with neatsfoot oil or Oakite, run card for a few minutes to clean the rubber, and proceed to card. On some synthetics the waste spools are discarded completely after cleaning rub aprons.

Stock not thoroughly emulsified, or "on the dry side," will gum up the aprons more so than will properly emulsified stock. Therefore it would be wise to check emulsions if the aprons persist in gumming up.

A properly emulsified stock when worked with the hand will leave a greasy or oily feeling on the palms and will help in keeping the aprons clean in most cases. An emulsion of three parts of oil to one part water is considered a good mixture, but it might vary occasionally on types of wool to be processed.

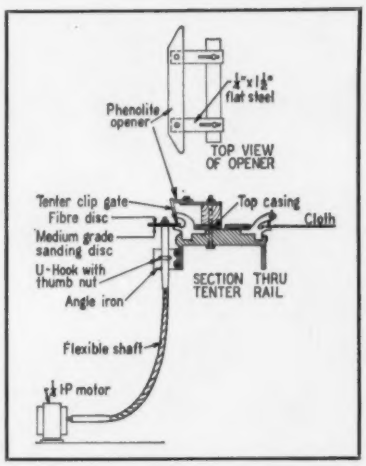
CONTRIBUTOR No. 1137

Another way to clean tenter clips

(CONTRIBUTOR No. 1109 *in the February issue asked for advice on cleaning resin deposits from tenter clips. Two replies were printed in the April issue, and a third one is given below.—The Editors*)

THE EDITORS:

CONTRIBUTOR NO. 1109 might try this arrangement on his tenter frame to remove resin build-up on the clips. Use the sander sparingly, and only when actually needed, for ten or fifteen minutes at a



time. Arrange the angle iron, clip holder, and opener on each side of the frame and move the sander as needed. Caution: use sander *only* when the frame is in operation.

CONTRIBUTOR No. 1139

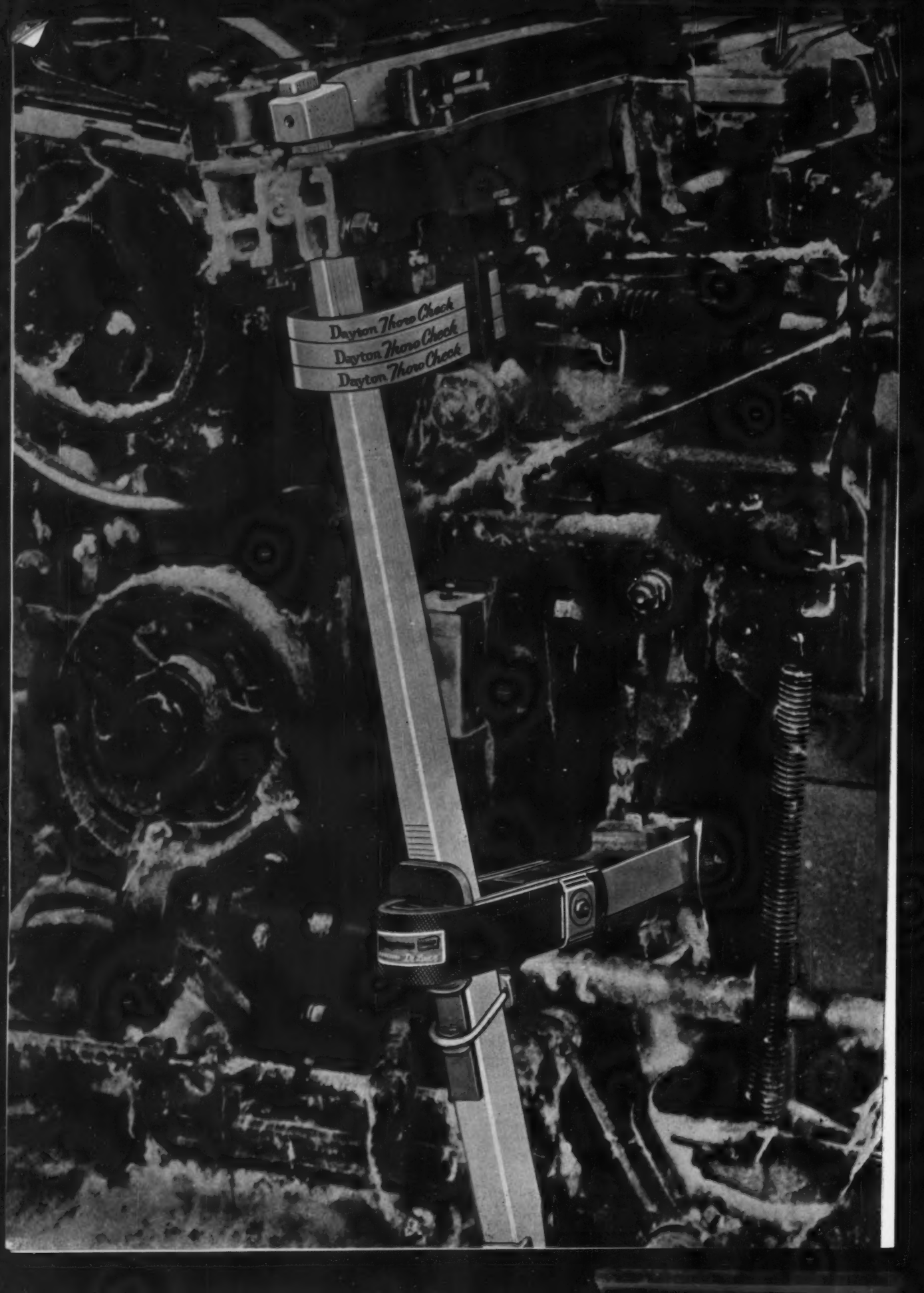
Reduces comber variation

THE EDITOR

Several months ago I became interested in further reducing variation on Whitin Nasmith combers and the regular Nasmith types. Since we already had reduced our variation from the low 30's by changing to three-over-four drawbox drafting system, we decided to try a two-over-three.

To do this we removed the third

(Continued on page 181)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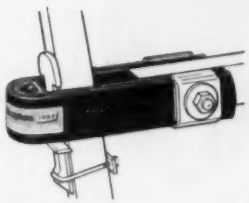
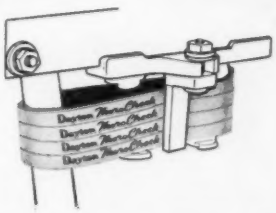


SHOCK ABSORBING Dayton Thorobred Deluxe-Lug Straps are molded together around a built-in plug that soaks up the hammering blows generated in the first instant of picker stick thrust. One-piece, link-free construction is the secret of longer service with greater protection for both the stick and loom.



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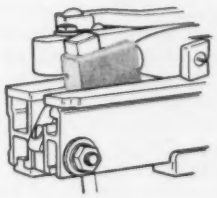

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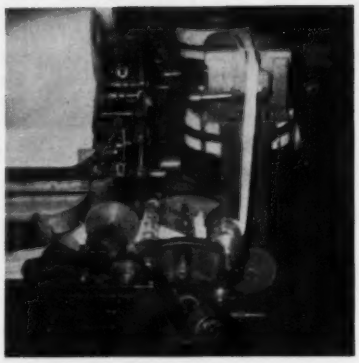
bottom metallic drawbox roll and had made in our machine shop a large top roll (6" x 4⅝") bored through its center to receive a ¾" journal. We pressed the journal in place and cut the ends down to fit the drawroll top bushings.

We sent the roll to the roller shop for a calf-skin covering. Then we set the bottom metallic drawbox rolls as follows: first to second—as close as possible (jammed up slide to slide or bearing to bearing); second to third—3½" to 4".

We then put the large roll between the second and third bottom rolls and weighted each end of the large roll with a 25-lb weight. The large roll, after finishing, weighed 23 pounds, so its total weight (mounted) came to 73 pounds. On the front we used the regular top drawbox roll and the regular connecting gears.

On the back roll we used a 42-T, 14-pitch gear; on the middle roll, a 40-T, 14-pitch; on the front roll, a 40-T, 14-pitch gear. The cost amounted to $3.25 for the large roll and $2.50 for covering it with calf skin (synthetic rubber can be used), $2.40 each for the two 40-T gears, and $2.65 for the 42-T gear. The regular underclearers were used at the first and second bottom rolls. Between the front top and large roll we used a V-type clearer.



The large top roll may be seen to the left of center. V-shaped clearer has been removed and gear cover taken off.

A cover must be made for the top rolls, as the old frame clearers will be made obsolete. There is no clearer attached to this—it is there only for uniformity—as the V-clearer will act on the front and large top rolls.

Our results were so satisfactory we now have in three of our plants over 100 Nasmith and Whitin Nasmith type combers in operation with the two-over-three systems. And the reduction in the variation has been from the 30's to the low 20's, and, in quite a number of instances, in the high teens or 30% over-all (we keep the records in our central laboratory for such references).

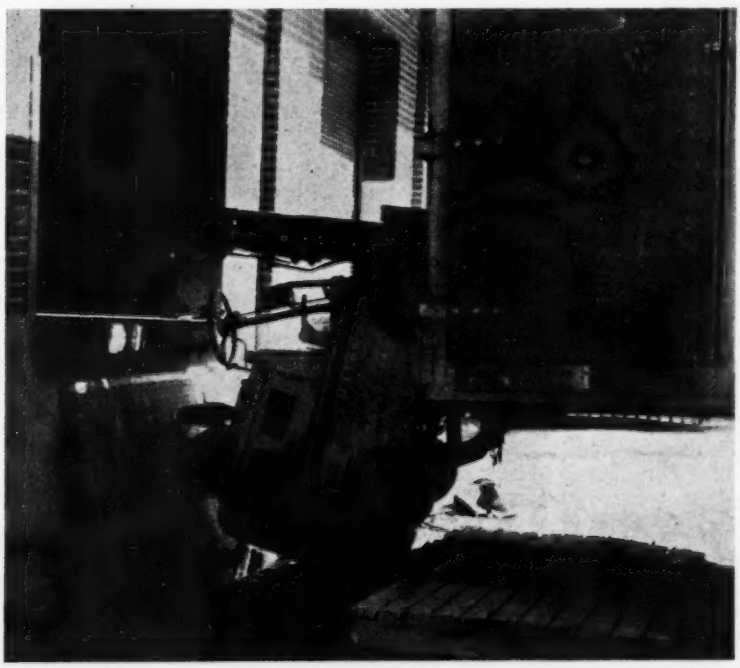
Since we changed over from three-over-four to two-over-three, our drawing slivers (53-gr comber sliver) on breaker and finishers have, without any adjustment, dropped considerably in variation. Yarn variation has been lowered accordingly.

CONTRIBUTOR No. 1140

Ways to keep the trailer under the fork truck

THE EDITORS:

When I first looked at the picture on p. 111 of the September, 1958, issue of TI, I was somewhat amazed at its being almost identical to a situation which happened at our plant about a year ago. Even the loading dock is of the same construction, and the accident description is also identical with ours.



In the interest of safety I should like to point out that chocks are not the complete answer, since the accident at our plant happened even though the trailer wheels were adequately chocked. We discovered that sand and gravel had gotten under ours, causing them not to hold firmly in place.

Additionally, the trailer springs were somewhat weak, and the weight of the lift truck caused the trailer to nose up and slide forward. As a solution, we sank eyebolts into the concrete and now actually lash the trailers to them with heavy chains. This procedure has prevented a recurrence.

Fortunately, the lift truck driver was not killed. But he suffered severe injuries and was not able to work for many months. I

(Continued on page 184)

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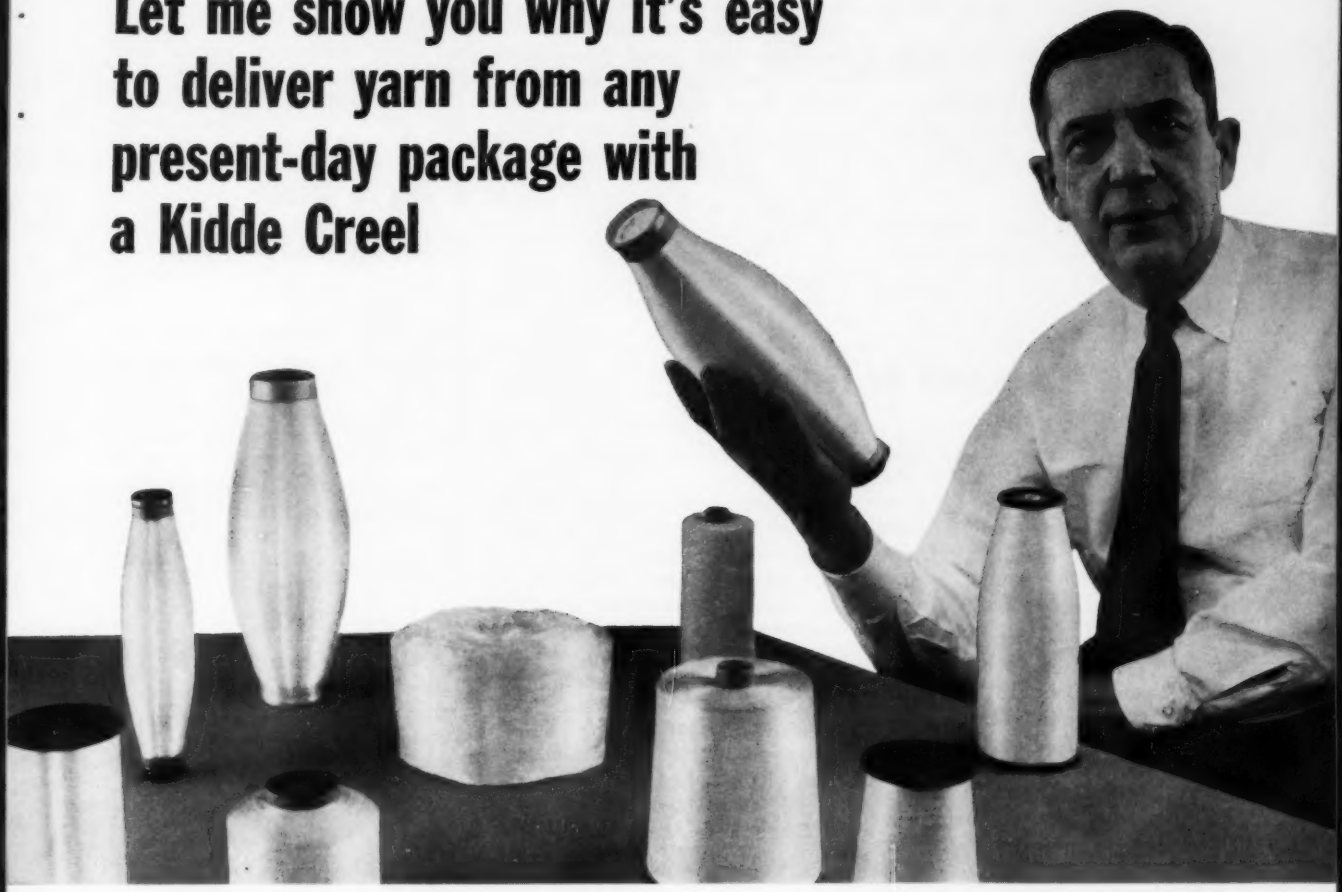
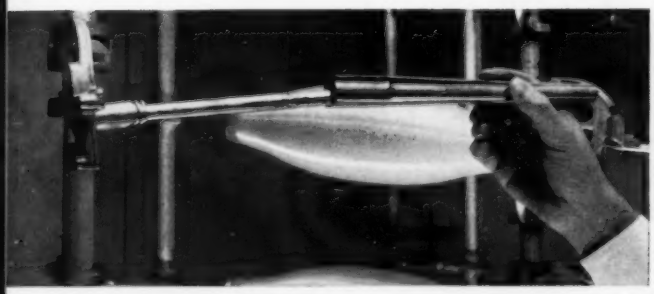
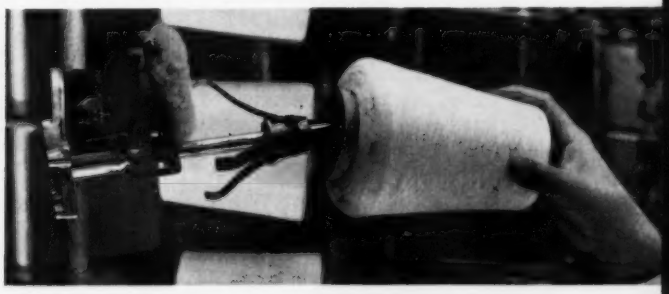
Let me show you why it's easy to deliver yarn from any present-day package with a Kidde Creel



You need only a basic holder and adapters to handle any yarn packages on the Kidde creel. You can see in the picture at bottom left, for example, how easily the basic pirn pin can be equipped with adapters to handle any pirn of textile yarn made today. The snap-on holder shown next to it accommodates any taper cone, as well as a range of straight packages. What's more, we'll design holders and adapters for future packages to accommodate them on the present Kidde creel.

Of course, this is only one Kidde feature. We could describe our tension devices and the uniquely simple Kidde stop-motion. We could explain how Kidde makes a creel to your specifications and how easily you can adjust its clamp-type construction to fit your changing needs. But we have a booklet that does all this. We'll be glad to send you one. Just write or phone.





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should appreciate your passing this on to the plant where the accident occurred.

CONTRIBUTOR No. 1124

(We did as requested and are printing below the reply we received.—The Editors)

THE EDITORS:

We also found that chocks under the trailer wheels were not the answer to the problem of holding trailers firmly in place. We are presently using a system that incorporates the use of eye bolts anchored into the concrete apron. To these are attached a chain with fittings for securing it to the trailer king pin. Into the chain also is incorporated a load binder to take up the slack and tie the trailer down. So far we have found this to be adequate, and I believe it has solved the problem.

CONTRIBUTOR No. 1125

(Other comments are invited. —The Editors)

"How Many Cones Shall We Test?"

(The following discussion arose out of an article published in this magazine early last year. Upon receipt of the query we immediately forwarded it to the author whose reply is included below. — The Editors)

THE EDITORS:

The article in the February, 1958, issue of TEXTILE INDUSTRIES entitled "How Many Cones Shall We Test?" (p. 104) could be quite informative on an interesting problem. However, I suspect that in the extraction of this paper certain essential information was not included.

What do the symbols used in the equations represent?

It seems to me that unless one knows where to substitute the data in the formulas he cannot solve his problem.

CONTRIBUTOR No. 1064

THE EDITORS:

In answering CONTRIBUTOR No. 1064 I refer to the November, 1956, edition of *Standards on Textile Materials* published by the American Society for Testing Materials. This book relates two standards or practices describing the use of the formulas presented in my article. These are: "Proposed Recommended Practice for Calculating Number of Tests to be Specified in Determining Average Quality of a Textile Material" (p. 685) and "Core Sampling of Raw Wool in Packages for Determining Percentage of Clean Wool Fiber Present" (p. 559).

For the particular illustration cited in the article I can give the legend for the formula under the heading "How Accurate is Test?"

The formula follows:

$$n = \frac{N(\sigma_w^2 + K\sigma_b^2)}{KN(\frac{e}{t})^2 + K\sigma_b^2}$$

What the symbols mean is indicated in the accompanying box.

While I hope this information is sufficient, I recommend all interested persons read the pertinent portions of the ASTM handbook cited above as well as an additional one entitled "Choice of Sample Size to Estimate the Average Quality of a Lot or Process." This latter standard is somewhat similar to the ones cited above, but it has some additional points that may be useful to the reader.

OLIVER P. BECKWITH

The Symbols and Their Meanings

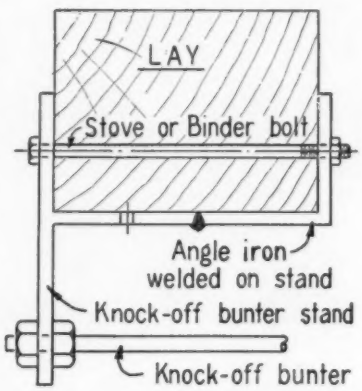
- n = the number of cones to be selected for testing
- N = the number of cones in the complete lot or shipment
- K = the number of tests taken on each cone
- σ_w^2 = the variance of tests within cones
- σ_b^2 = the variance of the cones in a lot
- e = required sample precision
- t = the probability factor

A way to secure knock-off bunter stands

THE EDITORS:

We had some trouble with the knock-off bunter stands coming loose on our Model E looms. They were secured to the lay with two short wood screws which worked out of the wood.

The illustration shows how we overcame the difficulty by welding a piece of angle iron to the knock-off stand, extending that member until the front of the angle iron formed a channel into which the lay fitted. We then fastened the stand to the lay bolt long enough to extend through the entire assembly.



CONTRIBUTOR No. 1134

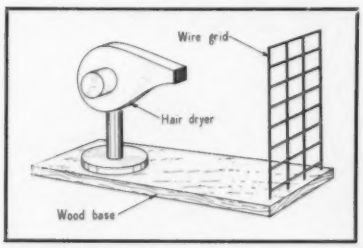
An easy way to dry fabric samples

THE EDITORS:

A handy and inexpensive dryer for quickly drying handwashed samples of yarn and swatches of cloth may be made by utilizing a hand hair-dryer. These dryers, intended primarily for drying women's hair after shampooing, are

available at most variety stores, drugstore cosmetic counters, etc.

As shown in the sketch, the dryer can be mounted on a substantial wooden base. A wire grid to hold the sample in position while being dried can be placed a few inches from the nozzle of the dryer. The sample may be fastened to the grid with an ordinary clothes pin, or



some type of paper fastener, etc. This appliance can be plugged in to any ordinary electric outlet. By mounting the wet sample on the grid and running the dryer for a minute or two the sample will be dried and ready for use.

Grey samples of cloth are often washed out with soap and water to remove slasher size, fugitive tints used to identify certain yarns while weaving, and superfluous chemicals, greases, etc., from the cloth. A women's hair dryer will provide the designer and technician with a simple method of quickly drying these samples and making them available for further examination and testing.

CONTRIBUTOR No. 1087

Death of an error

In case you disagree with the calculation

$$CV = \frac{100}{\overline{N}} = \frac{100}{\overline{1701}} = 2.42$$

at the bottom of Table 2 on p. 167 of our February issue, try using

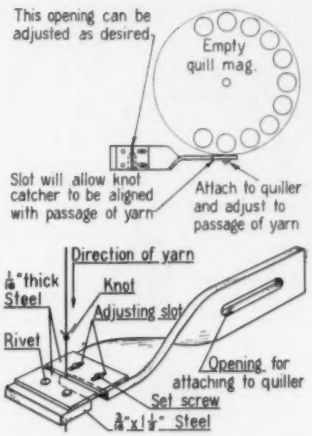
$$CV = \frac{100}{\sqrt{N}} = \frac{100}{\sqrt{1701}} = 2.42$$

We find this works better and faster. By the way, the error was ours.—The Editors

Prepares knot-free filling at winders

THE EDITORS:

In our plant we weave an upholstery fabric in which the filling must be free of knots. To accomplish this end we simply did not tie any knots in our supply packages that were to be run on our quillers. However, this proved to be very expensive, since each time a loose end came up on the supply package the quiller tender had to completely rethread the quiller spindle. To overcome this difficulty we designed a knot catcher that would remove any knots in the filling by breaking the end. By so doing the quiller tender simply replaces the yarn into the thread guide, and starts the end to an empty quill. In this manner all of the knots that were placed in the yarn are broken out. The result is knot-free filling.


This opening can be adjusted as desired
Empty quill mag.
Slot will allow knot catcher to be aligned with passage of yarn
Attach to quiller and adjust to passage of yarn
Direction of yarn
¼" thick Steel
Knot
Adjusting slot
Rivet
Opening for attaching to quiller
Set screw
⅜"x1½" Steel

CONTRIBUTOR No. 1080

Compare this twist study approach with yours

THE EDITORS:

I refer to the article "How Does Your Twist Variation Compare with This?" in the January issue of TI, p. 131. It is agreed that the CV's submitted by CONTRIBUTOR No. 1094 do look a bit high—they should be five to six per cent on tensile strength and stretch—but they appear to be about right for the twist.

On single-end testing one can expect a higher CV on tensile and elongation than is experienced with skein testing. On single-end testing one works with 10-inch lengths; on skeins one works with 120 yards which average out much of the variation.

Twist tests are expected to have high CV's because: (1) unevenness in the yarns causes twist to be higher at thin places; (2) slippages at the spindles cause variations; (3) variations occur from the top of the stroke to the bottom; and (4) sampling and personal errors occur.

To analyze the test results, I suggest that one plot them (in groups of four or five) on X and R Shewhart control charts and compute control limits to see if there is a state of control. Next, make a frequency distribution of the individuals to see if they follow the normal curve roughly.

If there is any doubt about the normality of the distribution, take the actual average and standard deviation and compute the expected distribution. Compare the actual with the theoretical distributions and compute the chi-squared value to obtain a numerical value of agreement.

Refer to a chi-squared table to get the probability that the actual distribution is normal. If there is good agreement, one may conclude that the supposed high CV's are expected. If the reverse is true, then there is a great amount of hard work ahead for the laboratory personnel. One should not rely too heavily on comparisons with other mills unless it is known that the processes are identical.

CONTRIBUTOR No. 1127

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the field

Thermostable Diastafor desizing agent leads the field for top performance– for dependable desizing at lower costs.

Different types and strengths are available to meet your individual needs. For high temperature, continuous process operations, select special high potency Diastafor LCD.

Be sure of quality. Save time and cut costs. For the good prepare that means a finer finish, use Diastafor– leader in its field for more than 45 years.

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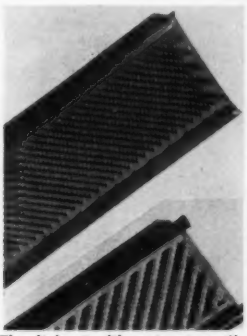
NEW PRODUCT PARADE

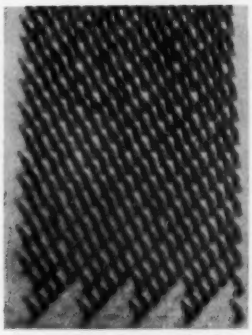
Machines and Equipment . . . Supplies and Services . . . Dyes and Chemicals . . . Books

Please note: Claims made in all of these announcements of new developments are of necessity based upon information furnished by the respective suppliers.—The Editors.

"Metallic" flats cut flat strips from 50 - 70%



The licker-in like wire is twill-set into the foundation fabric as shown at the bottom of this photo.



Note the shape of the teeth in this close-up photo. Wire runs for years without grinding.

By having the flats on cotton-type cards covered with a "metallic" clothing now available it is possible to reduce flat strips from 50 to 70% without adversely affecting the quality of the web. Also, the metallic flats run for many years without grinding.

Particularly advantageous for the processing of man-made fibers, this flat clothing consists of licker-in like wire set in an exceptionally strong foundation fabric.

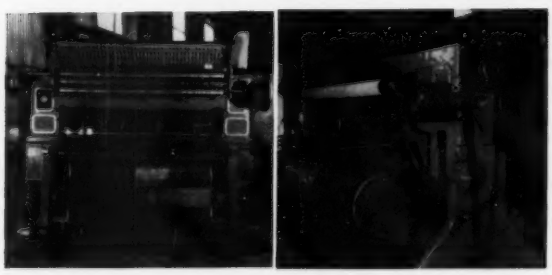
The clothing is applied to the flats by the supplier. Upon receipt of flats at his shop, old clothing is removed and surface of the flats ground until variation is less than .001". The metallic clothing base is then clipped onto the bare iron flats.

The flats are ready to run as soon as they are installed on the card—grinding to remove irregularities is not required.

Nemo Industries, 3081 Maple Drive, Atlanta, Ga.

Do you want more data? Write ◆ or use card on page 205; list E-101

No limit on patterns with this tufting machine



With the Model 850-CL Combination Cut and Loop Pile Pattern Tufting Machine for making floor coverings and other items it is possible to produce either cut pile or loop pile fabric and also a fabric incorporating patterns which are created by switching from cut pile to loop pile and vice versa.

The pattern possibilities are infinite—the machine will reproduce anything that can be drawn on a piece of paper. Various textured effects can also be produced because the machine can create a differential in nap height between the cut and loop pile.

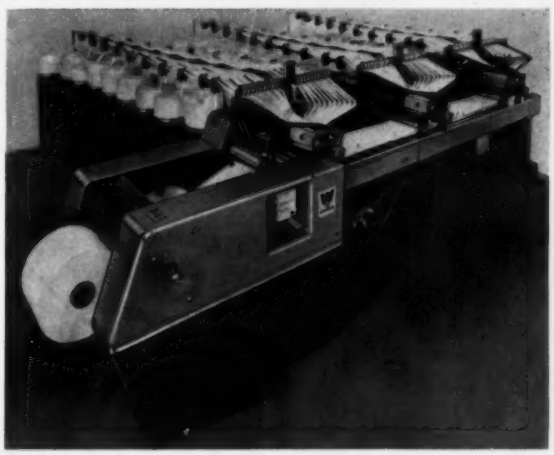
Almost instantaneous changeover from patterned goods to either plain cut or plain loop is another feature of the machine. The rate of production of these machines is approximately the same as that of any other tufting machine.

On machines up to 62" in width (used primarily for making fabric for small rugs) a mechanical-electrical control is utilized. The larger machines (up to 216" in width), which are used primarily for production of carpeting, are electrically controlled.

Ten-Tex Corp. of Georgia, 1400 Chestnut St., Chattanooga 2, Tenn.

Do you want more data? Write ◆ or use card on page 205; list E-102

Comber lap preparation method cuts noils 3%



Up to 3 per cent reduction in noils and 20 - 25 per cent higher comber production are benefits to be derived from a new method of comber lap preparation. Comber laps are produced directly from drawing sliver at a rate of approximately 500 lb/hr on a new "Super Lap" machine which drafts and doubles sliver, straightens (removes hooks) and parallelizes fiber, and forms heavier laps for maximum comber efficiency.

It is estimated that in an average combed yarn operation savings produced by the machine will pay for it in approximately one year.

From a can creel 60 slivers are fed into the lap making machine, 20 each in three heads. The ends pass down-

Automate your cotton looms by "weaving-from-a-cone" with **UNIFIL**® *Loom Winders...*

You can weave higher quality cotton fabrics at lower cost per yard, by installing UNIFIL Loom Winders.

The UNIFIL Winder brings the entire process of filling preparation right to the loom. It automatically winds, loads the shuttle, strips and returns empty quills to the winder. Tension variation is held to a minimum . . . quill soilage and mixed fillings are virtually impossible! Savings in quill handling alone quickly pay for UNIFIL. And cloth quality is *automatically* better on every yard you run, because of better prepared filling and improved transfer conditions. Thousands of UNIFIL Winders are daily improving the weaving of filament and spun fabrics, as well as cotton.

Find out how UNIFIL Loom Winders can improve cotton weaving and profits in *your* mill. Ask your Universal Sales Engineer, or write Universal Winding Company, P. O. Box 1605, Providence 1, Rhode Island.

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ward through a special two-over-three drafting system (recommended total draft 24-32) and along a table where the output of the three heads is combined into one lap. Combined sheets, 11¾" wide, are drawn through the calender rolls and wound into lap form. The lap is automatically ejected onto a receiving tray when it reaches the required size.

Slivers are supported in their passage by a creel with individual supports equipped with electric stop motions.

Whitin Machine Works, Whitinsville, Mass.

Do you want more data? Write ◂ or use card on page 205; list E-103

Plastic drop box and loop pickers offer long life

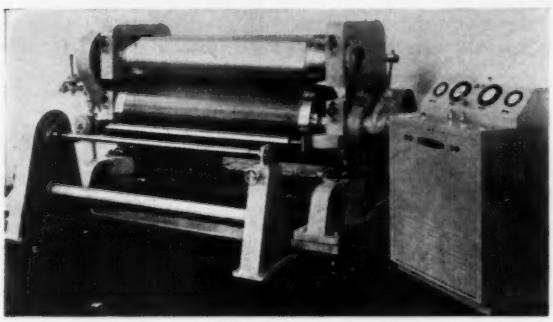
White plastic drop box and loop pickers recently placed on the market will give many times the wear expected of the conventional rubberized fabric type.

An additional feature of this drop box type picker is the fact that it is equipped with molded nylon spindle rod bearings which when worn out may be replaced in a few seconds without tools. Therefore, many additional months of service may be expected from the picker.

Denman Textile Div. of The McCandless Corp., 52 Vanderbilt Ave., New York 17, N. Y.

Do you want more data? Write ◂ or use card on page 205; list E-104

Gives tricot a high quality schreiner finish



A heavy-duty, two-roll schreiner calender for tricot fabrics features a new type of gas heating unit which provides heat for the exceptionally large forged steel top roll. Since the heating unit has direct contact with one end of the roll face, constant temperature is assured.

An adjustable let-off unit controls the tension of the cloth by air pressure. Constant tension wind-up is provided by a special device equipped with constant tension motor and electric controls.

The special off-nip drive for the bottom roll has a built-in over-running clutch to keep the bottom roll rotating when pressure is released or rolls are separated. This unit is electrically operated by automatic control.

Other construction features are: (1) steel frames are mounted on a heavy steel base plate to facilitate installation; (2) rolls are equipped with self-aligning roller bearings mounted in heavy steel housings; (3) automatic lubrication of all bearings; (4) special hydraulic pressure unit with built-in controls and pressure gauges for ease of regulating pressures on each side of calender; (5) easy installation and removal of calender rolls.

B. F. Perkins & Son, Inc., Holyoke, Mass.

Do you want more data? Write ◂ or use card on page 205; list E-105

NEW PRODUCT PARADE

Morepel RW
eliminates "Cleaning Rings"

Because of its excellent performance, one of the major automobile manufacturers has recommended the use of this water repellent on all of its fabrics.

The extremely small amounts of Morepel RW necessary for good repellency coupled with the fineness of particles (less than one micron) eliminates the possibilities of "rings" or "halos" when spotting solvents evaporate.

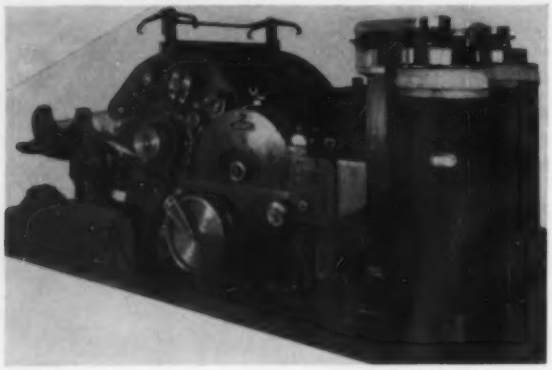
Morepel RW increases color fastness of dyes in treated fabrics. On automotive fabrics it has been found to show no wicking in 72 hours.

Morepel RW may be poured from a drum and diluted with hot or cold water with no danger of spotting due to lumps or wax particles. It is freeze-thaw stable. It is now packaged in exact weight 450 lb. steel drums.

Let us send you full information and samples.

MORETEX *Chemical Products,* INC.
314 W. Henry St., Spartanburg, S.C.
Established 1908 Manufacturing Chemists

Cards man-made fiber at 70-80 lb per hr



A 46"-wide three-roller card now commercially available is capable of producing coarse man-made fiber sliver of excellent quality at about 70 to 80 pounds per hour. Manufactured in widths from 41" to 72", it is one unit of a range of machinery developed especially for the economical production of carpet yarns from man-made fibers by William Tatham, Ltd., of Rochdale, England, and recently made available through a U. S. agent.

The card is 4' 6" high and has a 25" cylinder and doffer, three pairs of rollers and clearers, and a fancy. The machine takes two 22" diameter laps, and the laps are fed by a pair of feed rolls covered with special metallic wire. The cylinder, rollers, and clearers are covered with non-strip flexible clothing, while the doffer is covered with short cut metallic wire.

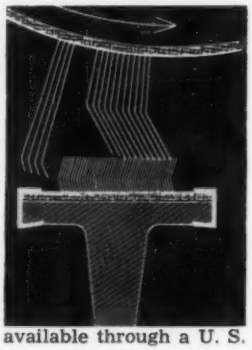
A new type of doffer stripping mechanism permits high doffer speed. It incorporates two ball bearings mounted on chrome plated rollers and is extremely effective in insuring the complete removal of the material from the doffer. Loss of fiber in front of the doffer is greatly reduced.

The doffer is divided in the middle by a leather ring, and the two webs thus formed are taken to separate pairs of calender rolls fitted with an improved sliver compressor. Final delivery is to two large coilers accommodating 16" x 42" cans which have a capacity of more than 20 pounds.

Louis P. Batson Co., P. O. Box 772, Greenville, S. C.

Do you want more data? Write ☁ or use card on page 205; list E-106

Flatstripper fillet has long and short wire



Now available is a flatstripper fillet with wire of two lengths — the longer teeth clean the bottom of the flats without touching the foundation; the shorter teeth keep the flats clean on top. Called "High-Low" flatstripper fillet, it is 1" wide set in intervals. The spring steel wire is set in a flexible foundation with panelast-face.

This new fillet, made by AB Kardbeslag of Sweden and available through a U. S.

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DESIZE *with*
EXSIZE®

A 40-year record of service to the cotton finishing industry assures you that Exsize removes starch.....› FAST SAFE SURE

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Industrial Products Division • Merchandise Mart
Chicago 54, Illinois

agent, can replace the spiral brush at the front of the card; it may also be used temporarily at the back of the card, the same as regular card stripper fillet.

Oliver D. Landis, Inc., 1805 W. Franklin Ave., Gastonia, N. C.

Do you want more data? Write ◂ or use card on page 205; list E-107

High speed 3-bar tricot machine

A new 168" three-bar tricot machine is designed to operate at speeds double those of older machines now operating in the 310 to 400 course per minute range and offers a wide range of pattern possibilities.

Among the exclusive features to be found on this unit are: (1) interrupted let-off control for front and middle beams, (2) accommodates warps up to 32" in diameter for bottom and middle beams and 21" for the third beam, (3) 48-course pattern drums independently mounted and designed for use with varied length pattern chains, (4) simplified guide bar removal, and (5) chain drive at all points where accurate timing is essential.

Let-off units, rack counter, and fabric take-off gear change box are conveniently located at the right end of the machine. A 10 hp standard motor coupled with a highly efficient variable speed drive enables the machine to be operated around the clock with a minimum of attention.

Textile Machine Works, Reading, Pa.

Do you want more data? Write ◂ or use card on page 205; list E-108

Skein dyeing machine handles yarns with care

In the Mezzera (of Italy) skein dyeing machine yarns are handled with such gentleness that tangling is prevented, assuring high production at the winding machine.

Especially recommended for dyeing skeins of fine man-made, silk, and cotton yarns, this Type TMB machine is equipped with a hood (with inspection windows) which, besides saving space, prevents the loss of fumes and heat.

The machine employs the principle of big liquor flow with minimum movement of yarn. During the dyeing cycle a skein moving rod rotates in both directions around the perforated tubes at previously fixed intervals.

Standard types of this machine have 2, 4, 8, 12, and 20 tubes. A laboratory model is also available.

Venango Engineering Co., Inc., 8311 Torresdale Ave., Philadelphia 36, Pa.

Do you want more data? Write ◂ or use card on page 205; list E-109

NITRIDED SPINNING AND TWISTER RINGS

REVERSIBLE and NON-REVERSIBLE 8 and 10 mm, curved and straight Webb SPINNING RINGS

REVERSIBLE and PLAIN TWISTER RINGS

R+F

NITRIDED Rings with a surface hardness of 67 to 69°C Rockwell have greater resistance to wear . . . and are practically FREE from corrosion.

Accurate Profile

Mirror-like Finish

For Longer Life— Fewer Ends down— Increased Spinning & Twisting Production— Improved yarn Quality

USE R+F NITRIDED SPINNING and TWISTER RINGS

TEXTILE SUPPLIES W D USED MACHINERY

Watson & Desmond

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YOU *Can't Afford* TO IGNORE

Here's a chance to analyze your sewing room costs . . . discover how the most modern production methods and up-to-date equipment can improve your profit picture.

The Merrow Man in your area is prepared to make a *free survey* of your sewing room operations. He will submit a report (in confidence and at no obligation) analyzing your problems and offering cost-cutting solutions.

You'll find (as others have) this service can represent dollars in your pocket, because the Merrow Man is a *skilled, experienced sewing room specialist.* He's concerned every day with finding production short-cuts . . . suggesting better methods . . . improving quality and reducing rejects.

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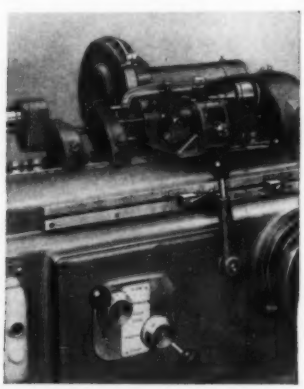
FOR ABSOLUTE ACCURATE BUFFING OF SPINNING ROLLS
DRONSFIELD'S ROLL GRINDING MACHINE NO. 270 WITH HYDRAULIC TRAVERSE



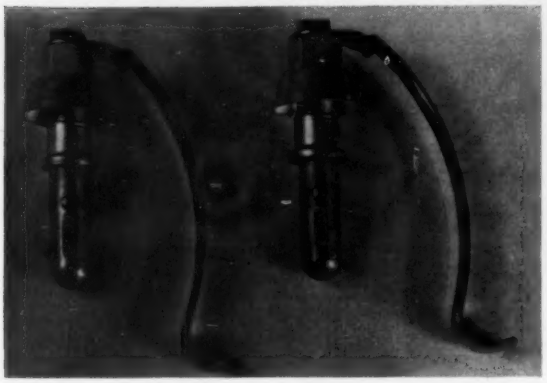
Friction Driving Attachment No. 269 for use with Grinding Machine No. 270

This attachment has been designed for holding and driving rollers fitted with ball or needle bearings (without removing the shells) whilst being ground on the Dronsfield's Roller Grinding Machine No. 270.

Enquiries to — Messrs. Cotton-McCauley & Co. Inc., 3 Hammond Street, Greenville, S. C. and 188 Main Street, Pawtucket, R. I.

DRONSFIELD BROTHERS LIMITED - ATLAS WORKS - OLDHAM - ENGLAND.

Bobbin holder permits one-hand creeling



The "Sure-Lock" bobbin holder, which may be easily applied to all standard umbrella type spinning creels, offers the following advantages:

1. Greatly reduces operator fatigue. Operative can creel-in roving bobbins with one hand.
2. Only one size of brake is needed. Oversize curl at the end of the sturdily constructed brake, which is broad and of contour design, prevents its sticking into the hole of the bobbin.
3. Positive latching arrangement does not damage bobbin, does not allow it to fall from holder, and always readily releases the bobbin when the operative lightly pushes the bobbin up.
4. Lint-free anti-friction bearing. Bearing is located and concealed so that lint will not get into it under normal operating conditions. Therefore, binding and break backs from this source are prevented.

The bobbin holder slides easily into the top of the bobbin, the locking latch being retained within the barrel of the holder so that it does not scratch the bearing surface. When the bobbin is pushed up against the collar of the holder, the latch remains inside the holder. When the bobbin is allowed to drop, the collar of the holder slides down to its original position and the latch snaps into place, suspending the bobbin. To release the bobbin from the holder it is only necessary to lightly push the bobbin up with one hand, raising the collar of the holder, which retracts the locking dogs. The bobbin is then free to drop clear of the holder.

Saco-Lowell Shops, P. O. Box 327, Greenville, S. C.

Do you want more data? Write ◂ or use card on page 205; list E-110

Handy for checking size concentration at slasher

With a specially designed pocket refractometer (an optical instrument that permits direct reading of the per cent of solids in a solution) now available, mill superintendents, overseers of slashing, and others may quickly check size concentration at the slasher size box and thus maintain accurate control over this factor.

If the size pick-up on the slasher being checked is

The Laurel Leaf

BUSINESS MAGAZINE EDITION

VIDOL SOAP FLAKES

Vidol Flake Soap is the low titre member of the Laurel *quality* soap family. It is produced from the finest grade of distilled red oil (Oleic Acid), and tests approximately 12° C titre. Like all other Laurel products, it is made under conditions of rigid laboratory control which assure uniformity from lot to lot and trouble-free mill operations.

Vidol Flake Soap is used in a variety of applications, including boiling off, scouring, soaping off, dye leveling and stripping, and wool fulling. It is easily dissolved and, being of low titre, is free rinsing at low temperatures. It may be used successfully on cotton, wool, silk, nylon, Orlon, Dynel, Acrilan, Dacron, Vicara, rayon, acetate, etc. The results are exceilent.

If you are looking for a high quality, low titre flake soap, we strongly urge you to investigate the plus values offered by Laurel VIDOL Flake Soap. We will be happy to send you a generous sample for your own use and testing.

Laurel Brand — 50 YEARS OF SERVICE TO INDUSTRY 1909-1959

Laurel SOAP MANUFACTURING CO., INC.
TIOGA, THOMPSON & ALMOND STS., PHILA. 34, PA.

Warehouses: Paterson, N.J. Chattanooga, Tenn. Charlotte, N.C. Greenville, S.C.

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A BASIC PRODUCER FROM MINE TO FINISHED PRODUCT

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Our complete control of raw materials from mine to finished product allows our total independence from elemental sulfur and enables **TENNESSEE CORPORATION** to accommodate and ship large tonnages of acid quickly and with minimum notice.

The sulfur contained in the ore we process yields Virgin Sulfuric Acid of highest quality free from organic matter, very low in iron, and in no way contaminated from regenerated or spent sulfuric acid sources.

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RAPID SERVICE
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Benninger Eng. Co., Ltd.	Sectional Warper and Beamer
Staubli Bros., & Co., Ltd.	Dobby Heads
Loepfe Bros., Ltd.	Optical Electronic Feeler
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The STAUBLI DOBBY is

The world's fastest, most modern CAM DOBBY!
FEATURES: Sprocket chain drive. Long open dwell. Heddle staggering motion. Hand or mechanical pickfinder. Original single paper indicating device for weave and box patterns and other loom controls. No pattern storage problems. Complete synchronization. Operates up to 32 harnesses. Many successful U. S. installations on: MP, S-1, S-6, C-4, C-5, C-7, Terry looms, XP-2, X-D, etc. and Warner & Swasey Weaving Machines.

Write for full information now, for your type looms and the fabrics run.

100 per cent, the reading obtained with the instrument is, of course, the per cent of size in the yarn. Where the size pick-up is other than 100 per cent, a correction factor (determined at the mill by a desize test) must be applied.

Since variation in size viscosity might be caused by an actual variation in concentration of the size bath (either due to faulty preparation, or due to evaporation of moisture from or addition of condensate to the size), the instrument aids in pin pointing the source of viscosity variation.

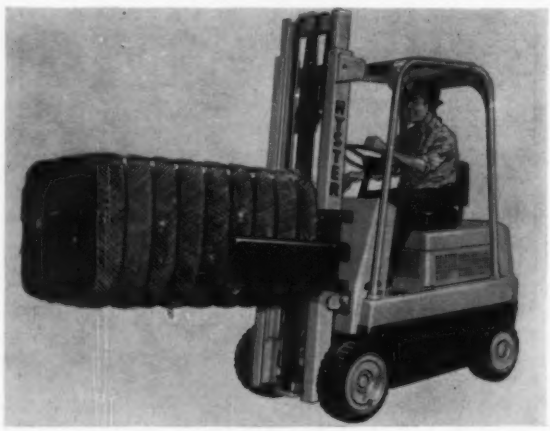
In mills where wet beam-dyed warps are sized, the device is especially useful.

A small amount of size is placed between two prisms (at right in illustration). Light passing through the prisms and the layer of size is bent, the amount being proportional to the concentration of the starch or sugar in the solution. The light beam also passes by an opaque shield and through a graduated scale. The amount of bending of the light ray varies the apparent displacement of the shield so that part of the graduated scale is light and part dark. At the edge of the shadow the scale may be read.

Nemo Industries, 3081 Maple Drive, Atlanta, Ga.

Do you want more data? Write ◂ or use card on page 205; list E-111

Special cotton handling lift truck



A 3000-pound-capacity, cushion-tire lift truck ("Space-Saver" 30) is specifically designed for handling cotton. The unit is equipped with a no-clog cooling system, special fuel system and engine breathing equipment, special heavy-duty upright, and UL type GS approved equipment.

The radiator on the cotton truck is protected from clogging with lint and fluff by a removable pre-cleaner screen. Straight-line fins allow lint to pass through the radiator or to be easily blown out. In addition, lint pick-up from the floor is prevented by a belly pan running the length of the truck. An easily cleaned or changed dry-type air cleaner is located high under the hood to effectively filter out dirt and lint encountered on cotton handling operations.

Special equipment on the truck to meet UL requirements for type GS approval includes spark and flame arresting exhaust system, battery quick disconnect switch, shields for electrical connections, and protecto-seal gas cap. Because of the fire hazard encountered when refueling trucks in the cotton area, the truck has

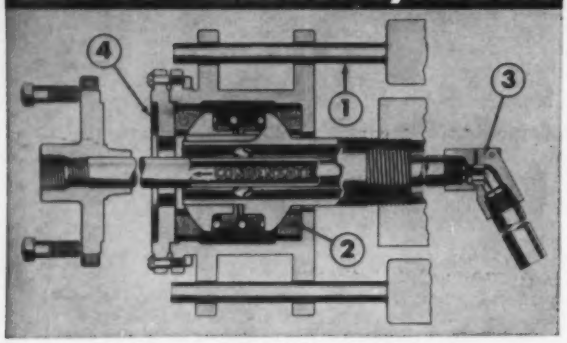
(Continued on page 198)

New dyes

For more information on one or more of these recently developed dyes, either write directly to the supplier whose name appears in Col. 5, or list the key number in Col. 6 on one of the handy return cards on page 205 and TEXTILE INDUSTRIES *will request the data for you.*

1 Class	2 Name	3 For use on	4 Remarks	5 Supplier	6 Key No.
Acid	Neonyl Black JT	Nylon	Neutral dyeing black produces jetter shade.	Ciba	D-301
Basic	Sevron Orange CL	Orlon and related acrylic fibers; Orlon and wool blends; Dacron	Yellower, brighter shades of orange that show good fastness to light at 160 hours are provided. Can be applied over pH range of 4.5 to 8.0 as a self-shade or as a shading element in making tans, browns, grays, and blacks. Good fastness to carbonizing and wet processing.	Du Pont	D-302
Basic	Sevron Blue NF	Orlon and related acrylic fibers; Orlon and wool blends	Produces attractive bright blue shades that have good fastness to light and wet processing. Useful in production of tan, brown, gray, charcoal, bright blue, and navy shades on Orlon. Also recommended for printing.	Du Pont	D-303
Direct	Cuprofix Yellow C-2RLN	Cotton and rayon	After-coppering dye that gives a bright reddish yellow. Outstanding fastness to light and perspiration. Very good washfastness. Reserves acetate.	Sandoz	D-304
Direct	Cuprophenyl Black BWL 200% and Cuprophenyl Black GWL 200%	Cotton and rayon	These two after-coppering blacks produce attractive, deep shades. First has a bluish cast; latter a jetter shade. Recommended when extremely high fastness to washing and light are required.	Geigy	D-305
Disperse	Latyl Orange NST	Dacron, acetate, nylon, Arnel, Darvan, Acrilan	Reserves cotton and rayon. Unaffected by alkaline treatments. Yields bright orange shades that exhibit good fastness to light, wet processing, and sublimation. Useful as component in production of tans, grays, browns, and navies on Dacron and blends of Dacron and cellulosics.	Du Pont	D-306
Neutral Metalized	Capracyl Brown HRN	Nylon, wool, Creslan, Verel, dynel, Zefran	Bright, reddish chocolate brown shade with lightfastness of 80 to 160 hours in deep shades. Good fastness to washing. Exhibits monotone buildup on both nylon and wool, making it useful for continuous dyeing of raw stock.	Du Pont	D-307
Vat	Cibanone Grey BG Paste	Cellulosics	Uniform penetration and slow exhaustion provide level dyeings of gray shades on beams, packages, and piece goods. Produces an attractive medium gray self-shade with top fastness to light and washing.	Ciba	D-308
Vat	Ponsol Yellow 2G Double Paste	Cellulosics	Produces reddish-yellow shades with good fastness to washing, chlorine, peroxide bleaching, pressing, and water spotting. Has fairly good lightfastness. Useful as self-shade or as component in making orange, brown, or black.	Du Pont	D-309
Vat	Calcoloid Brilliant Orange RK	Cellulosics	Very bright reddish-orange shade with very good fastness to sun and weather exposure. Offers very level dyeing, does not tender fiber in processes where alternate reduction and oxidation occur, reserves acetate, prints satisfactorily.	American Cyanamid	D-310
Vat	Calcoloid Gray 2BC	Cellulosics	Produces neutral shade of gray. Combines high fastness and good level dyeing properties with excellent working properties in all processes and equipment.	American Cyanamid	D-311

For service on Dry Cans and 30" Slasher Cylinders



Type LJSP with Syphon Elbow

Johnson ROTARY PRESSURE **Joints** *First* in the Textile Industry

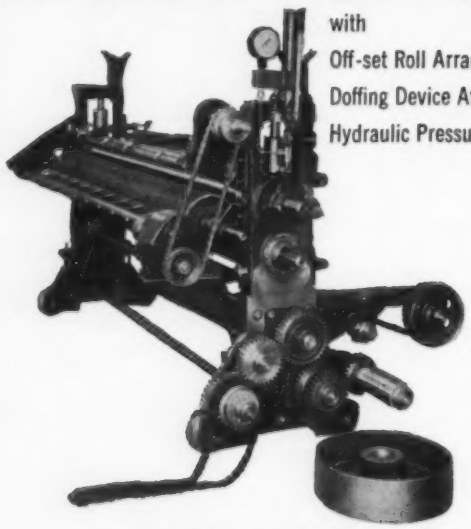
1. Support rods carry all the real weight. Sealing assembly "floats" freely inside. **2.** Seals without packing—needs no lubrication or adjusting. **3.** Syphon elbow replaces clumsy curved syphon pipe with two straight pipes, passes right through joint. **4.** Assembly plate holds parts in place when head is removed.

Write for Catalog J-2002

Shows Johnson Joints for all needs, on dry cans, print cans, calenders, compressive shrinkage ranges, 5' and 7' cotton slashers, etc.

THE JOHNSON CORPORATION
815 Wood St., Three Rivers, Mich.

NEW "LIGHTWEIGHT" PERALTA® MACHINE



with
Off-set Roll Arrangement
Doffing Device Attachment
Hydraulic Pressure

Write for information.

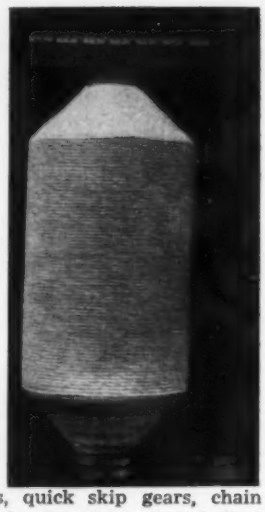
Duesberg-Bosson of America, Inc.
Main Street Jefferson, Mass. P.O. Box 25

a reserve fuel supply sufficient to run it to the regular fueling area. Truck can be equipped with two-bale clamp, three-bale clamp cotton boom, the Perry hook, the Garret quick-break attachment, and a variety of other hydraulic attachments and options. Overhead guard and LP-gas fuel system are optional. Special heavy-duty upright construction is used to resist stresses due to side loading of bales.

Hyster Co., 1003 Myers St., Danville, Ill.

Do you want more data? Write ◂ or use card on page 205; list E-112

14" x 6½" roving cuts creeling cost up to 75%



Now available is a 14" x 6½" model of the Whitin "Hi-Pro" roving frame. With the 85- to 90-ounce packages of roving produced on this machine, spinning creeling costs may be reduced from 30 to 75 per cent. Other advantages of the larger packages are lower doffing costs and higher efficiency.

The new frame runs at the same standard speeds as the Whitin 12" x 6½"—flyer speed range is 660-680 rpm.

Among the construction features of this large package frame are: "Unitrol" top arm weighting with precalibrated springs, new clearers, quick skip gears, chain drive to twist gears, helical head end gearing, helical bonnet and spindle drive, and anti-friction bearings at all points.

Present Whiting 12" x 6½" Long Draft roving frames may be modified to utilize any or all of the improvements which are standard on the 14" x 6½" frame.

Whitin Machine Works, Whitinsville, Mass.

Do you want more data? Write ◂ or use card on page 205; list E-113

New finishes and chemicals

Minimize tendering of fabrics during the removal of crease-resistant resins by using "Emkatex NTA," a chemical formulation which is applied to the goods as a protective colloid before the addition of muriatic acid. The product also acts as a lubricant, keeping the goods soft and pliable during resin removal and helping greatly to keep the goods in good condition for redyeing and refinishing.

Emkay Chemical Co., 319-325 Second St., Elizabeth, N. J.

Do you want more data? Write supplier or use card on page 205; list E-201

Pure catalysts employed in curing resins offer these advantages: better tear strength, non-chlorine retentive, no odor, and no afterwash required.

Zimmerman Associates, Guilford College, N. C.

Do you want more data? Write supplier or use card on page 205; list E-202

For all wetting and rewetting operations is a new anionic surface active agent called "Anionyx RW." Among the special applications for it are proprietary

treatment for rapid rewetting in compressive shrinking, adding absorbency in towelling and felt, and as an auxiliary in continuous peroxide ranges. A pale, light syrupy liquid, the product is compatible with a variety of non-ionic and anionic finishes.

Onyx Oil & Chemical Co., Jersey City 2, N. J.

Do you want more data? Write supplier or use card on page 205; list E-203

A durable agent for resin finishing of cottons and synthetics, particularly in connection with thermosetting resins for crease-resistant fabrics, is available. Called Solutol-S, it is effective in yielding increased tear strength, tensile strength, and crease angle values, as well as excellent sewability and abrasion resistance. Non-yellowing and non-chlorine retentive, the product is also effective as a pure finish or used with other agents such as thermoplastic resins, starches, gums, etc.

Soluol Chemical Co., Natick, R. I.

Do you want more data? Write supplier or use card on page 205; list E-204

For use in scouring fiber-reactive dyed goods, as well as for vat and azoic dyed materials, is "Synthrapol SP," a blend of synthetic surface active agents. The product provides the thorough soaping required to remove unfixed colored byproducts formed by secondary reactions of dye with water.

Arnold, Hoffman & Co., Inc., 55 Canal St., Providence, R. I.

Do you want more data? Write supplier or use card on page 205; list E-205

Foam control in finishing, printing, and dye baths at high and low temperatures is provided by Antifoam-G, a silicone bearing defoaming agent which is effective in low concentrations. Excellent dispersability insures rapid and complete foam dissipation.

Soluol Chemical Co., Natick, R. I.

Do you want more data? Write supplier or use card on page 205; list E-206

A dye retarder specifically for use in dyeing Orlon Type 42 with basic dyestuffs offers significant cost savings and even, level dyeings. Optimum results are obtained from dyeing Orlon and blends of Orlon in light and pastel shades, the amount of the retarder (usually 1.0 to 2.0 per cent) used at such times being dependent on the desired depth of shade—the pale shades require more of the compound, Ecco Retarder 0-42, than do the darker shades.

Eastern Color & Chemical Co., 35 Livingston St., Providence 4, R. I.

Do you want more data? Write supplier or use card on page 205; list E-207

A dye carrier for Dacron produces even, bright shades with good penetration and color depth. Called Ecco Dacrol D, it has excellent emulsion stability at the boil and assures dyeing without spotting. A cyclic aromatic liquid carrier for use in well-ventilated systems, the "one-package" product is easily handled and added to dyebaths and is completely soluble at all temperatures.

Eastern Color & Chemical Co., 35 Livingston St., Providence 4, R. I.

Do you want more data? Write supplier or use card on page 205; list E-208

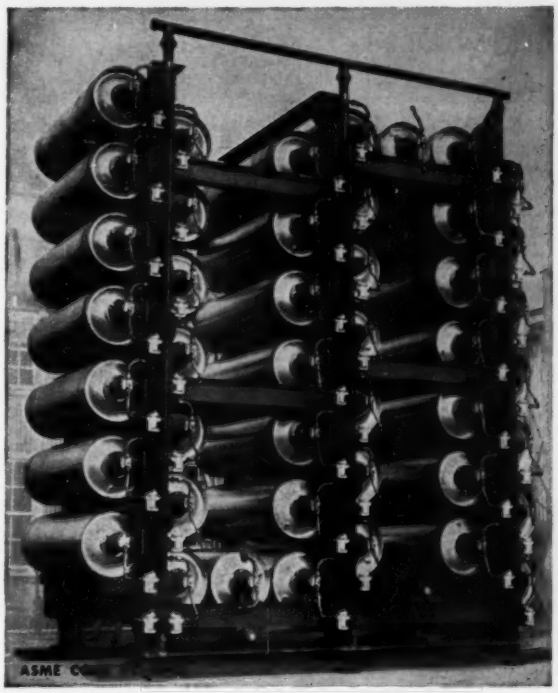
A latex formulation has a remarkable resistance to gas fading. Called MCC-100, its film-forming properties adapt it to use on loosely woven fabrics, carpets, etc., and it offers outstanding resistance to light degradation and oxidation. Copper containing dyestuffs discolor it negligibly.

Manufacturers Chemicals Co., 930 N. Darien St., Philadelphia, Pa.

Do you want more data? Write supplier or use card on page 205; list E-209

PROVEN SUPERIOR

In actual day to day operation where the real worth of machinery is tested, Sims new Stainless Steel 75 psi reversed dished head 44 Dry Cans* are proven superior. They require less horse power . . . are easier on bearings . . . and save floor space with no loss in drying surface. And, the chain drive is on one side of the can, while the steam fittings are on the other side . . . permitting maintenance of the drive without time lost waiting for steam pipes to cool.
Furnished Teflon-coated if desired.



Fabricated and installed at Lanett Bleachery and Dye Works, Lanett, Alabama by Sims Metal Works.

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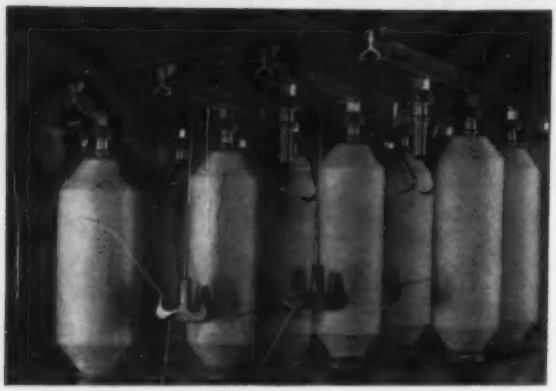
Our modern and progressive metal-working shops, our skilled craftsmen, our know-how—these are guarantees of quality. For custom tailoring of stainless steel, call, wire, or write *now.*

* U.S. Pat. Off. No. 2779104

Sims METAL WORKS
WEST POINT, GA.
Fabricators Since 1928

United States Supply Co., 888 Broadway, East Providence, R. I.
Harley D. Hohm, Inc., 128 Buist Ave., Greenville, S. C.
Friday Textile Machine & Supply Co., Gastonia, N. C.

Spinning creel is adjustable in 3 ways



A new umbrella type spinning creel is of lint-free design and adjustable in three directions: (1) the whole creel may be adjusted vertically on the creel posts; (2) the creel slats may be easily adjusted in relation to each other; and (3) the individual bobbin holders may be adjusted longitudinally on the creel slats. Designated the Saco-Lowell 3-Way Creel, it is available as a single level creel for Gwaltney frames or multiple level creel for conventional spinning.

With this creel accumulation of lint and fly is less, stretched roving because of defective skewers is prevented (creel is equipped with the "Sure-Lock" bobbin holder described on page 195), and performance of overhead cleaners is improved.

Slats are of extruded aluminum. Cross girts are formed steel and the connecting brackets are die cast. All connections are completely concealed, minimizing the possibility of lint collecting.

The creel can be furnished with roving rods or roving guides, depending upon the number of ends of roving being run.

Saco-Lowell Shops, P. O. Box 327, Greenville, S. C.

Do you want more data? Write ☁ or use card on page 205; list E-114

New yarns

A new filament acrylic yarn for knitwear. "Orlon Cantrece," is designed to give the feel and the sleek, lustrous look of silk. It can be textured by a variety of texturing processes to achieve versatility in handle and appearance. Garments made of the yarn wash easily, dry quickly, and keep their shape without blocking.

Textile Fibers Dept., E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del.

Do you want more data? Write supplier or use card on page 205; list E-210

Color changes for "Colorspun" filament rayon. Revisions in the color line-up for "Colorspun" filament rayon, involving substitutions of eight shades in standard denier yarns, have been announced. Generally fresher and clearer in appearance, the new colors were developed for use in apparel fabrics and draperies. Five new shades for Colorspun filament rayons have also been added to the 75-denier "specialty colors" used for worsted decorative yarns in suiting fabrics.

American Viscose Corp., 1617 Pennsylvania Blvd., Philadelphia, Pa.

Do you want more data? Write supplier or use card on page 205; list E-211

AMERICA'S SPRING STEEL DISTRIBUTOR

We have had over fifty years experience furnishing steel for both builders of TEXTILE MACHINES and makers of replacement parts for KNITTING MACHINES.

Modern Slitting and Shearing Equipment

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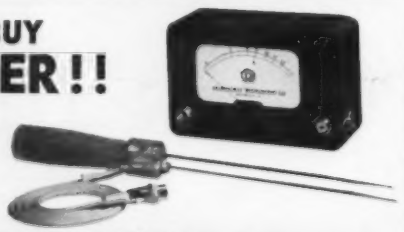

TEST MOISTURE CONTENT OF BALED COTTON EASILY WITH

DELMHORST MOISTURE DETECTOR

Now you can test 100 bales in less time than it takes to prepare one oven sample. Detector is battery operated, requires no maintenance. Complete details on request.

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Specializing in Textiles Since 1914

Equipment briefs

Zippered polyethylene bags that are designed for maximum visibility in displaying hosiery (either on shelves or hanging from racks) in dust-proof packages have an

added sales appeal in that the Zip-Lip bags may be reused for storing foods in refrigerators, etc., handling cosmetics, wet bathing suits, dirty clothes, etc.

Kennedy Car Liner and Bag Co., Inc., Prospect Ave., Shelbyville, Ind.

Do you want more data? Write supplier or use card on page 205; list E-212

Sponge rubber clearers are now available for all roving and spinning frames which utilize a revolving type front top roll clearer. They last longer, save time and labor. One of these clearers may be completely cleaned of all lint in two or three seconds by a single motion of the hand. They are applied directly over steel shafts.

Saco-Lowell Shops, P. O. Box 327, Greenville, S. C.

Do you want more data? Write supplier or use card on page 205; list E-213

Stainless steel enclosures for combination starters provide greater protection than standard cast-iron or sheet steel enclosures on installations subject to excessive moisture, organic and inorganic chemicals, and dyestuffs. Built to NEMA Type 4 (water-tight) specifications, the new enclosures are constructed of heavy-gauge AISI No. 302 stainless steel.

Square D Co., 4041 N. Richards St., Milwaukee 12, Wis.

Do you want more data? Write supplier or use card on page 205; list E-214

A slat-type apron for wet process applications, especially wool scouring trains, will last much longer than conventional aprons. Heat-treated forged chain is utilized for mounting the slats which are made of synthetic material that will not warp under heat or wet acid conditions. Wool will not cling to the smooth slats.

Robert A. Main & Sons, Inc., 257 Pascack Rd., Paramus, N. J.

Do you want more data? Write supplier or use card on page 205; list E-215

An improved loom sand roll covering, designated Condor Sand Roll Covering, Style SP, is very resistant to natural oils found in cotton, and to the mineral oils which are added to the sizing used on synthetic fabrics. In addition, the surface of the material is ideally suited to many of the new fabrics; it is tough and wear-resistant and will not cut or damage the cloth. Available in 2, 2½, and 3-inch widths, the covering maintains a uniform density under the toughest conditions and will not

NEW PRODUCT PARADE

NOW...

mill-wide cleaning

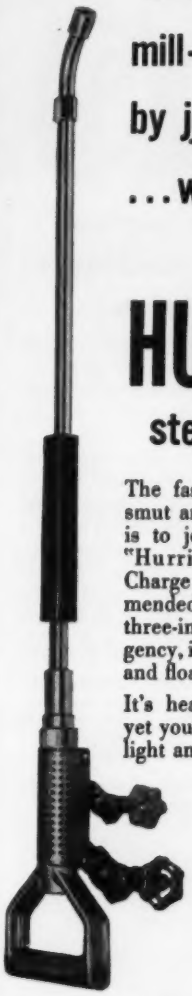
by jet-blast

...with the new

Oakite

HURRICLEAN®

steam-detergent gun



The fast, new way to remove lint, oil, smut and grease from textile equipment is to jet-blast it loose with the Oakite "Hurriclean" steam-detergent gun. Charge this powerful gun with recommended Oakite detergent and you get three-in-one cleaning power: heat, detergency, impact. Then twist a valve to rinse, and float off all the loosened soil.

It's heavy-duty mechanized cleaning... yet you've never handled a unit so safe, light and easy.

SAFE Steam travels in an inner, insulated tube. Outer tube conveys the cool detergent solution. Mixing takes place at the nozzle. This keeps the gun always cool to the touch, always safe.

LIGHT Weighs a mere 6¼ lbs.

EASY A twist of the tube grip changes direction of the spray. No dragging and kinking of hose lines. Cleaning 'from under' is a cinch.

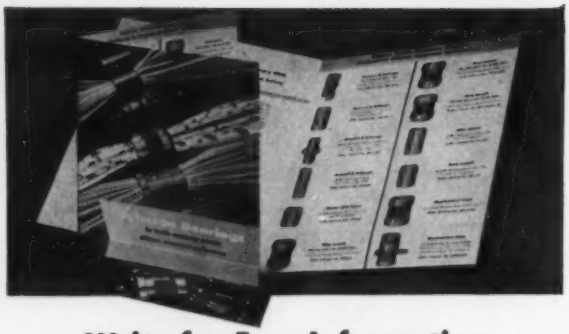
You'll find that the Oakite "Hurriclean" gun brings big savings in time and money, while doing a far better cleaning job on looms, spinning frames, tenter chains, dye kettles, slasher drums, drying cylinders and other equipment, and, of course, on floors and walls.

Ask your local Oakite man to let you try out the "Hurriclean" steam-detergent gun. Or write for details to Oakite Products, Inc., 42 Rector Street, New York 6, N. Y.

OAKITE

50 1909-1959 SCIENCE

years' leadership in industrial cleaning



Write for Free Information on Johnson Textile Machinery Replacement Bearings

The ordering of maintenance material for textile machinery is simplified with this new Johnson folder which illustrates and describes a wide range of bearings for several leading makes of textile equipment.

You can order in confidence for Johnson Bearings are made to the exact specifications of the original equipment. The design of each bearing, its alloy, size-tolerances and oil grooving all are identical with the bearing to be replaced.

For your free copy of this Johnson Textile Bearing Folder JBL-9, write Johnson Bronze Company, 530 S. Mill Street, New Castle, Pa.

Johnson Textile Bearings

Subsidiary: Apex Bronze Foundry Co., Oakland, Cal.

LAB. BLENDER — NEP COUNT

Designed by the United States Dept. of Agriculture

The Mechanical Cotton Blender effectively blends cotton samples 20 times faster than by hand. The principal feature is an adjustable feed plate in combination with a fluted feed roll which feeds a sample into a rotary blending cylinder. Blending or carding of dyed samples for color comparison is another use of this unit. (ASTM D1441-54).

Model CS-45

The Nep Test Machine provides a rapid and satisfactory method of preparing specimens of raw cotton for nep evaluation. The design of this machine incorporates the principal mechanical assemblies of textile carding machines in order to simulate commercial production methods. (ASTM D1446-53T).

Model CS-69

Folders and price upon request

As our name implies we also welcome the opportunity to work on custom design and manufacture of testing instruments of all types for individual and general needs.

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541 Devon Street — Kearny, N. J.

crack, oxidize, or corrugate.

Raybestos-Manhattan, Inc., Passaic, N. J.

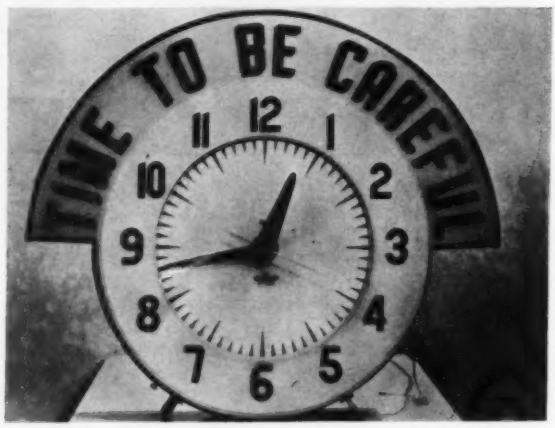
Do you want more data? Write supplier or use card on page 205; list E-216

An electronic thread tension gauge (the Rothschild) measures thread tension of at least 1/10 gram, continually and permanently recording tension variations and introducing the least possible inertia and extra thread strain. In addition to production applications on winding machines, looms, twisters, stretching machines, etc., the gauge is useful for analytical measurements.

Fabrionics Corp., P. O. Box 521, Dept. H, Huntington, L. I., N. Y.

Do you want more data? Write supplier or use card on page 205; list E-217

Clocks carrying safety messages are being offered. The three-foot, neon-illuminated, multi-colored clocks carry a reflection-lighted safety area large enough to accept letters



four inches high—messages can be read up to 300 feet. Along with the clocks are offered custom messages of up to 20 letters and spaces.

The Electric Neon Clock Co., 13900 Broadway, Cleveland 25, Ohio.

Do you want more data? Write supplier or use card on page 205; list E-218

Fiber pattern discs for Hemphill machines. Recently announced as replacements for steel pattern discs on the Hemphill half hose knitting machine were fiber pattern discs.

Wildman Jacquard Co., 1012 Stambridge St., Norristown, Pa.

Do you want more data? Write supplier or use card on page 205; list E-219

An automatic air filter of horizontal design is now available. Called the Type H "Roll-O-Matic," the renewable-media air filter is ideal for application on new or existing multi-zone air conditioning units, heating and ventilating units, industrial heaters, or other types of air conditioning units. It also answers the need for horizontally designed filters in ventilating systems where limited headroom is a factor.

American Air Filter Co., Inc., Louisville 8, Ky.

Do you want more data? Write supplier or use card on page 205; list E-220

Little headroom is required by electric hoists of a recently announced line—for example, the 5-ton model requires only 24" of headroom. Designated Type F3, the hoists are available in capacities from 1½ through 7½ tons. Other features of the hoists are: may be used outside as well as indoors; limit switch protects both the machine and operator; danger of cable breakage is minimized; brake coils cannot be overloaded or

the air gap increased excessively.

Robbins & Meyers, Inc., Hoist & Crane Div., Springfield, Ohio.

Do you want more data? Write supplier or use card on page 205; list E-221

A line of reciprocating air compressors for industrial and automotive applications consists of over 200 models, with motor or engine capacities from ¼ hp to 20 hp, air displacement up to 92 cfm, and tank capacities up to 200 gal. Both horizontal and vertical tank models are equipped for automatic start and stop operation; horizontal models also offer continuous service operation. All models are loadless starting; motor is allowed to attain full speed before compression starts.

Lincoln Engineering Co., 4010 Goodfellow, St. Louis 20, Mo.

Do you want more data? Write supplier or use card on page 205; list E-222

A quick-reset counter consists of the counter and a long rod (running in ball bearings) on the end of which is a measuring wheel which rides on the web being measured. Swiveled to permit the wheel to be lifted out of contact with the web while a defective part of the web passes through unmeasured, the SR-8 is suited for cloth inspection tables, etc.

Trumeter Co., 38 West 32 St., New York 1, N. Y.

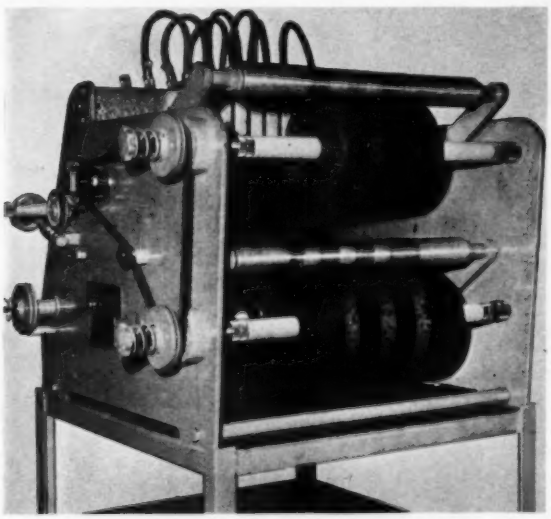
Do you want more data? Write supplier or use card on page 205; list E-223

Machine leveling wedges fitted with vibration pads make speedy work of setting up, leveling, bringing to height, etc. The double action wedge, called Wedgemount, is made with integral bolt and nut that permits the wedge thickness to be changed by applying a wrench to the nut. The units are fitted with Air-Loc vibration pads that keep machines in place without use of bolts or cement.

Clark-Cutler-McDermott Co., Air-Loc Div., Franklin, Mass.

Do you want more data? Write supplier or use card on page 205; list E-224

A rewind slitter for cutting textiles, paper, etc., into strips features slip clutches operating on a spinning reel principle to minimize tension. The Model BD-S-24 is available with either score cut or razor-blade slitting



stations. Overriding slip clutches located on the rewind shaft eliminates tearing. A self-adjusting feature on the rewind shaft permits each rewind roll to operate independently from the others.

Doven Div., Appleton Mach. Co., Appleton, Wis.

Do you want more data? Write supplier or use card on page 205; list E-225

Rep. for the Carolinas & Va.: W. K. SHIRLEY, P.O. Box 406, Belmont, N. C.
Rep. for Ala., Ga. & Tenn.: H. L. WILLIAMS, Box 222, West Point, Ga.

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better
best
it will be done best with
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HERE'S WHY:
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Your inquiry is invited.
SPRAYING SYSTEMS CO.
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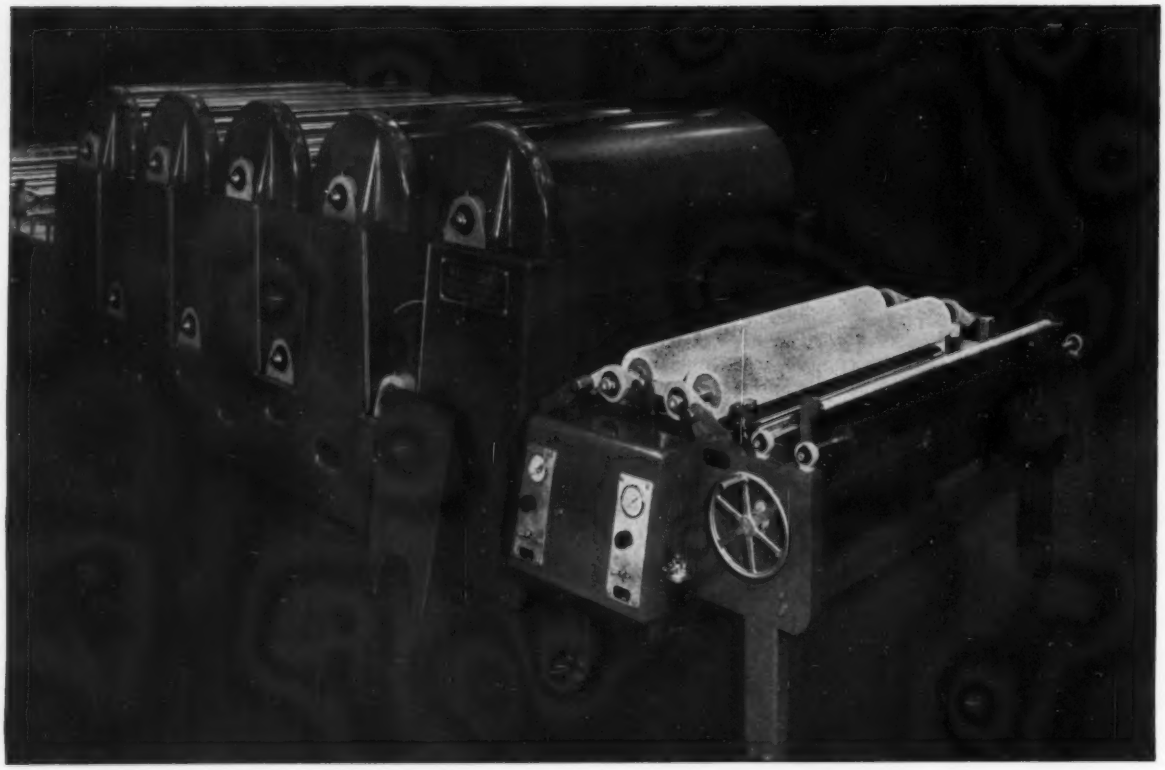
For complete spray nozzle information write for Catalog 24.

NEW PRODUCT PARADE

Why Use TWO Size Boxes When ONE Will Do?



WEST POINT's High Capacity Double-Squeeze Size Box is designed for *both* light and heavy warps. This versatile new size box is now running up to 6040 - 22's in one standard width size box. Other heavy warps now being slashed in West Point's high capacity size box are 5500 - 18's and 4400 - 10's.

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HELPFUL BOOKLETS FREE!

5-1 COMPRESSORS. WB two-stage water-cooled. Space-saving units require modest foundation up to 125 psi and 1150 cfm displacement. Bulletin WB-10. Gardner-Denver Company, Quincy, Illinois.

5-2 GEARMOTORS, MOTOGEARS, AND FLUID DRIVES. Catalog supplies complete information on double, triple, and quadruple reduction gearmotors and motogears. Electrofluid and fluid drives are also explained. Link-Belt Company, Dept. PR, Prudential Plaza, Chicago 1, Illinois.

5-3 CONTINUOUS STARCH COOKER. Booklet shows how the use of continuous cookers for starch assures accurate control, economy, low maintenance in work sizing and finishing. Clinton Corn Processing Company, Clinton, Iowa.

5-4 "BONDED COLORS". Color card details forty "Bonded Colors" which form an actual bond with the cellulosic fibre and are therefore exceptionally fast to washing and light. Franklin Process Co., 564 Eddy St., Providence, R. I.

5-5 EDGE GUIDE. Bulletin 22-1 gives information on efficiency, accuracy and versatility at edge guide. Illustrations include controls for any operation on any fabric. G.P.E. Controls, Inc., 240 East Ontario St., Chicago 11, Illinois.

5-6 AUTOMATIC TURNTABLE DETWISTER. Booklet entitled "Be Kind to Cloth and Profits" describes fast, dependable detwister which handles "ornery" twists in cloth. Mount Hope Machinery Co., 15 Fifth Avenue, Taunton, Mass.

5-7 DRIVE BULLETIN. Describes the complete line of variable speed drives which provide precise, infinitely adjustable output speeds from a constant rpm. motor source. Reliance Electric and Engineering Company, 27401 Euclid Avenue, Cleveland 17, Ohio.

5-8 TEXTILE CHEMICAL LIST. Booklet contains complete listing of all products manufactured for use in textile finishing. Apex Chemical Company, Inc., 200 South First Street, Elizabethport 1, N. J.

5-9 AIR COMPRESSORS. Bulletin gives specifications, photographs, and describes advantages of complete line of air compressors. Lincoln Engineering Company, 4010 Goodfellow Blvd., St. Louis, Mo.

5-10 TILLING TESTER. Booklet contains technical information on random tumble tilling tester. Includes features, advantages, recommended uses and gives detailed reports on preparing various materials for testing. E. I. DuPont, De Nemours & Company, Textile Fibers Dept., Wilmington, Delaware.

5-11 CURRENT FIBER DATA. Pocket sized booklet contains up to the minute fiber data and textile information. Includes a complete glossary of textile terms. Product Information Division, Public Relations Dept., American Viscose Corporation, 1617 Pennsylvania Blvd., Philadelphia 3, Pa.

5-12 ENKA FIBER 500. Bulletin gives an introduction to an experimental regenerated cellulosic fiber. Cross-section, physical and chemical properties, methods of processing, etc. are covered. American Enka Corporation, 530 Fifth Avenue, New York 36, New York.

5-13 DRIVE EQUIPMENT. Bulletin describes complete line of adjustable speed drive equipment for industrial applications. Explains principles on which the equipment operates and tells advantages that can be obtained. Dynamatic Division, Eaton Manufacturing Company, Kenosha, Wisconsin.

5-14 LIFT TRUCK ATTACHMENTS. Catalog describes complete line of "Little Giant" lift truck attachments and includes a list of twenty-six ways to get more out of your lift trucks. Little Giants Products, Inc., 1530-50 N. E. Adams St., Peoria, Illinois.

5-15 SPEED VARIATOR. Brochure provides detailed product description and engineering information precision, mechanical, variable speed drive. The Cleveland Worm & Gear Co., Speed Variator Div., 3300 East 80th St., Cleveland 4, Ohio.

5-16 FIRE EXTINGUISHERS. Folder contains a table which compares characteristics of various types of fire extinguishers. Graph shows comparative effectiveness of extinguishing agents. Fire Equipment Div., Ansul Chemical Company, Marinette, Wis.

5-17 MODERN LUBRICATION METHODS. A report to management tells how modern lubrication methods can help save thousands of dollars in three major economic areas of textile plant management. Describes twelve operating advantages of automatic lubrication systems. Lincoln Engineering Co., 4010 Goodfellow Blvd., St. Louis 20, Mo.

5-18 WIRE THREAD GUIDE. Brochure contains specifications and detailed information on hundreds of standard Chromium Plated Wire Thread Guides. Mitchell-Bissell Company, Brunswick & Heil Aves., Trenton, N. J.

5-19 NEW WARP SIZE. Detailed information on properties, range of viscosities and applications on "Mira-Film" Acetate Gum is given in brochure. A. E. Staley Manufacturing Company, Decatur 60, Illinois.

5-20 BOILERS. Bulletin provides information on line of mechanical pressure atomizing oil-fired and partial pre-mixing gas-fired POWERMASTER packaged automatic boilers. Orr & Sembower, Inc., Box 1138, Reading, Penna.

5-21 "ONE-SHOT" LUBRICATORS. Bulletin describes wide field of application for one-shot lubricators on machines requiring closely controlled but infrequent oil feed. Bijur Lubricating Corporation, Rochelle Park, N. J.

5-22 MANAGEMENT CONSULTANTS. Bulletin outlines services offered by Werner Tex in the fields of management, administration, personnel, manufacturing and marketing. Werner Textile Consultants, 1430 Broadway, New York 18, N. Y.

HELPFUL BOOKLETS FREE!

raw stock to roving

T-101 Lummus Pepper-Shaker Opener. Gives complete details and photographs. Aldrich Machine Works, P. O. Box 750, Atlanta, Ga.

T-102 Static Elimination. How to eliminate static safely and inexpensively. Simco Co., 920 Walnut St., Lansdale, Pa.

T-103 Card Grinding Information. Care and operation of cards. B. S. Roy & Son Co., Worcester, Mass.

T-104 Card Clothing. Describes Strip-O-Matic Card Clothing. Benjamin Booth Co., Allegheny Ave. & Janney St., Philadelphia, Pa.

T-105 Versa-Matic Drawing Frame. Describes drafting elements, quality of sliver, roving and yarn possible. Saco-Lowell Shops, 60 Batterymarch St., Boston, Mass.

T-106 Sargent Opener. Describes opener with rotary evener and stripper. C. G. Sargent's Sons Corp., Graniteville, Mass.

T-107 Feathertouch Drafting. How to get "highest production per frame at lowest cost." Ideal Industries, Inc., Bessemer City, N. C.

T-108 Automatic Weighing Feeders. Tandem Weighing Feeder produces webs, mats and felts of continuing accuracy. James Hunter, Inc., 745 Loundes Hill Rd., Greenville, S. C.

T-109 Flexidyne Individual Card Drive. Describes operating principles, includes prices. Dodge Mfg. Corp., Mishawaka, Indiana.

T-110 Bobbins. Catalog describes metal, wood and plastic bobbins. Illustrations show actual use. Lestershire Spool Div., National Vulcanized Fibre Co., Wilmington, Del.

T-111 Magnetic Ideas. Booklet shows uses of permanent magnetic separation equipment in opening room as well as throughout mill. Removes tramp iron, prevents fires. Eriez Mfg. Co., Erie, Pa.

T-112 Advantages of Aldrich Pickers. Good technical text, comprehensive pictures. Aldrich Machine Works, P. O. Box 750, Atlanta, Ga.

T-113 New Condenser Tape. Describes Supr-O-Tape, an impregnated fabric condenser tape. Benjamin Booth Co., Allegheny Ave. & Janney St., Philadelphia 34, Pa.

T-114 84" Woolen Card. Includes picture, floor plan, description, and technical details. Davis & Furber Machine Co., North Andover, Mass.

T-115 SRRL Opener-Cleaner. Information on new SRRL development for opening and cleaning cotton being manufactured for sale to mills by Dawidson-Kennedy Co., 1090 Jefferson St., N. W., Atlanta, Ga.

T-117 Stops Frame on Roving Failure. Brochure tells how device instantly detects all roving failures and stops frame; also how operators detects all roving failures and stops can handle more spindles with less ends down. Adams, Inc., 209 E. Stone Ave., Greenville, S. C.

T-118 Synthetic Blender. Information on blending machine that assures delivery of synthetic fibers to pickers, webbers, etc., in such shape that these machines can do their work properly. Cen-Tennial Cotton Gin Co., Columbus, Ga.

T-119 Fiber Meter. Automatic weighing and blending assures quality, holds variation to 1%. James Hunter, Inc., Greenville, S. C.

T-120 Pin Drafters. Textile job report No. 21 tells how Warner & Swasey Pin Drafters help modify jute system for carpet yarns at Lehigh Spinning Co., Allentown, Pa.

T-121 Universal Card Coiler. Literature describes both head and base swivel for adjustment. Includes data on 90-day free trial. McDonough Power Equipment, Inc., McDonough, Ga.

T-122 Recondition Opening & Cleaning. Bulletin gives whys and wherefores of reconditioning your opening and cleaning lines. Special attention given to each machine with suggestions as to parts replacement. Saco-Lowell Shops, 60 Batterymarch St., Boston 10, Mass.

T-123 Coiler Conversions. Full facts on low initial cost conversion to larger coiler cans. Lists advantages, has complete description. Southern States Equipment Corp., Hampton, Ga.

T-124 Card Drive. Bulletin 301-a describes simple, safe, efficient individual card drive. Southern States Equipment Corp., Hampton, Ga.

T-127 Pneumastop for Fly Frames. Brochure explains, in terms of dollars and cents, the benefits of having Pneumastop-equipped roving frames in the mill. Illustrated to show its operation and several different types of installations. Pneumafil Corp., Charlotte 8, N. C.

T-128 Quick-Set Roving Frame. Integral machine for processing of worsted, synthetic or blended yarns. Whitin Machine Works, Whitinsville, Mass.

T-132 Proctor Super Picker. Data sheet gives details of the Proctor Super Picker for use on slabs of baled cotton, or wool and synthetic blends in layers up to 12" thick. Proctor & Schwartz, Inc., 7th St. and Tabor Rd., Philadelphia 20, Pa.

yarn and warp making

T-201 Products For Spinning and Weaving. Complete line, applications, advantages shown. Dayton Rubber Co., Textile Div., Dayton, Ohio.

T-202 New Bobbin Manual. Complete bobbin guide. Lestershire Spool Division, National Vulcanized Fibre Co., Wilmington 99, Delaware.

T-203 Spindle Oil. "Gulfspin" insures against excessive wear and eliminates spindle wobble. Gulf Oil Corp., Gulf Bldg., Pittsburgh, Pa.

T-204 Anti-Static Agent. Data sheet lists basic characteristics of liquid anti-static agent which eliminates processing difficulties with fibers due to static electricity. E. F. Houghton & Co., 303 West Lehigh Ave., Philadelphia 33, Pa.

T-205 High Speed Automatic Quiller. Lists advantages and dimensions of "Autocopser." Terrell Machine Co., Inc., P. O. Box 928, Charlotte, N C.

T-208 Packaged Spinning Modernization. Details on Collecto-Vac, Open-Aire Creels, Cross-Jet Cleaner, Air Conditioning. Bahnson Company, Winston-Salem, N. C.

T-209 Sectional Warper. Describes full width and sectional warpers for knitting, weaving. Robert Reiner, Inc., Weehawken, New Jersey.

T-210 Conical Rings and Flyers. Complete details and specifications. Herr Manufacturing Co., Inc., 318 Franklin St., Buffalo 2, New York.

T-211 Precise Winding Machine. For winding pineapple or straight cones and tubes of synthetics. Foster Machine Co., Westfield, Mass.

T-212 Automatic Cleaning Equipment. Working details and advantages of the Tri-Rail Cleaner. American MonoRail Co., 13107 Athens Ave., Cleveland 7, Ohio.

T-214 Textile Mill Lubricants. Description of Ben Boy Bearing, Spindle, Twister Lubricants and Non-Melting Oils. Georgia-Carolina Oil Co., Box 101, Macon, Ga.

T-215 Custom Made Thread Guides. Includes composition, properties, specifications of all designs. American Lava Corporation, Chattanooga 5, Tenn.

T-216 Spinning Frame Conversions. Big-package, new-frame results at half the cost. Meadows Mfg. Co., Station A, Atlanta, Ga.

T-217 Collecto-Vac. New development collects lint, fly and broken ends. The Bahnson Company, Winston-Salem, N. C.

T-219 Spinning and Twister Rings. Complete details, pictures, price list. Whitinsville Spinning Ring Co., Whitinsville, Mass.

T-220 Lint-Free Creel. Complete details and pictures of the new Airfoil Design. Pneumafil Corporation, Charlotte 8, N. C.

T-222 Suction Cleaning System. Details on new Collector Unit Model C-4. Pneumafil Corp., Charlotte 8, N. C.

T-223 Facts About Your Flyers and Spindles. Advantages of smooth flyer and spindle operation. Ideal Machine Shops, Bessemer City, N. C.

T-224 Traveling Cleaners. Describes improved frame and room cleaners. Parks-Cramer Co., Fitchburg, Mass.

T-225 Lapless Endless Spinner. Full information available. Ton-Tex Corporation, 31 Columbus Ave., Englewood, N. J.

T-226 Worsted Spinning. Describes five stages from top to yarn. Saco-Lowell Shops, 60 Batterymarch St., Boston 10, Mass.

T-227 Spindle Oiling Machine. Features and advantages noted. Wicaco Machine Corp., 4800 Stenton Ave., Wayne Junction, Philadelphia 44, Pa.

T-228 Handy Spinning Reference. Shows traveler speeds, sizes of ring flanges. Victor Ring Traveler Co., Providence, R. I. and Gastonia, N. C.

T-229 Unirail Uptwister. Higher yarn quality and better packages at faster speeds. Universal Winding Co., P. O. Box 1605, Providence, R. I.

(Continued on next page)

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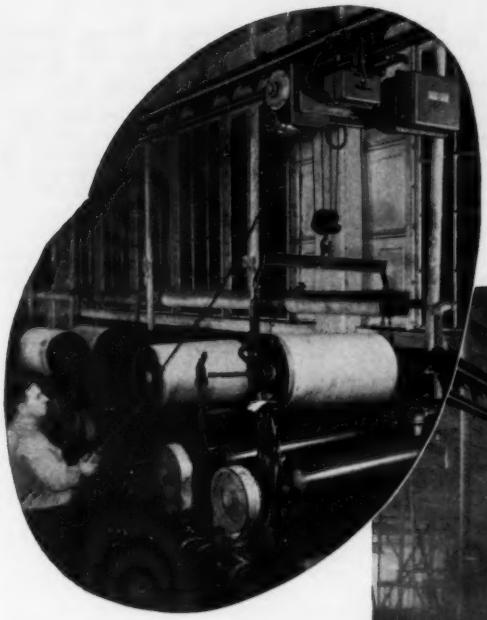

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Rolls of cloth are taken directly from the storage section to the Dyeing Department without rehandling. A transfer bridge gives complete coverage of the roll storage and interlocks with the two tracks serving the dyeing jigs.

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T-230 Precision Textile Winding. Tensions and density control for winding rubber cones. Kidde Textile Machinery Corp., Farrand St., Bloomfield, N. J.

T-231 Cone Winder. Describes Model 102 winder, including applications. Foster Machine Co., Westfield, Mass.

T-232 Short Cut To Staple Fiber Spinning. Ten steps in operation of the Tow Stapler. Turbo Machine Co., Lansdale, Pa.

T-233 Weaver's Knotter. Instructions as to use, description. A. B. Carter, Inc., Gastonia, N. C.

T-234 Textile Roll Coverings. Describes complete line as well as other mill supplies. Armstrong Cork Co., Industrial Div., Lancaster, Pa.

T-236 Tape For Driving Spindles. Describes banding for spindle drives on twisting, roving and spinning. Benjamin Booth Co., Allegheny Ave. & Janney St., Philadelphia 34, Pa.

T-239 Large Package Twister. Information on new anti-friction Jumbo Twister which carries a 14" bobbin with a 12" build. Meadows Mfg. Co., P. O. Box 4354, Atlanta, Ga.

T-240 Yarn Lubricant. Data sheets describe Fibergard EF 313, a white cream used for stock lubricant; warp sizing, softener, binder and lubricant; and cone winding lubricant. Harry Miller Corp., 4th and Bristol St., Philadelphia 40, Pa.

T-241 Pacemaker Twisters. Folder gives details on high production, outlines notable features. Whitin Machine Works, Whitinsville, Mass.

T-242 Ring Spinning Frame. Folder presents description, illustrations and specifications of up-to-date Simplex ring spinning frames. Davis & Furber Machine Co., North Andover, Mass.

T-243 Anti-Friction Twister Bearings. Find out how bearings helped make The Meadows Twister almost friction-free. Fafnir Bearing Company, New Britain, Conn.

T-246 Better Beams. Information on three ways to make better beams. Kidde Textile Machinery Corp., Farrand St., Bloomfield, N. J.

T-249 Vari-Speed Motor Pulley. Describes variable speed control through use of simplified three-major-part disc-assemblies with only one lubrication point. Reeves Pulley Co., Reliance Electric & Engineering Co., Columbus, Ind.

T-250 Spinning Modernization. Booklet shows how lower costs and improved quality are obtained by spinning modernization. Roberts Company, Sanford, N. C.

T-252 Frankl Textile Machinery. Details on foreign worsted machinery, narrow fabric looms, and finishing machinery. Ernest L. Frankl Assoc., 515 Madison Ave., New York 22, N. Y.

T-255 New Bobbin Holder. Details on streamlined, positive latching bobbin holder. Whitehead Die Casting Co., 1140 Zonolite Rd., Atlanta, Ga.

T-256 Variety of Bobbins. Information on complete line of bobbins for all types of looms and all types of stop motions by Emil Adolff of Germany. Textile Corp., 695 Summer St., Stamford, Conn.

T-258 Dependable Beams. Free bulletins available on complete line of light metal, continuous welded construction beams. Milton Machine Works, Inc., Milton, Pa.

T-259 Silicone Warp Spray. Information on how to end costly downtime with K-15 Silicone Warp Spray. Lubricates, stiffens, strengthens, binds split ends and is non-staining. Schmidt Manufacturing Co., New Bedford, Mass.

T-261 The Brief Saga of the Ring Traveler. An interesting history relative to the ring traveler, which is in reality the basis of the spinning frame. John Thorpe's invention of ring traveler, the development of the spindle, and the invention of Rabeth's bolster type spindle are covered. Write National Ring Traveler Co., Pawtuckett, R. I.

slashing—weaving—tufting

T-301 Counting And Measuring Devices. Wide range of counting devices for all types of textile machinery. Veeder-Root, Inc., Hartford, Conn.

T-302 Loom Supplies. Describes complete line. E. H. Jacobs Northern Division, The Bullard Clark Co., Danielson, Conn.

T-303 Innovation In Textile Drying. Details on Steam or Gas "Hot Air" Slasher. J. O. Ross Engineering Corp., 444 Madison Ave., New York 22, New York.

T-304 Loom Production Charts. Celluloid card shows yards per loom per week. Ralph E. Loper Co., Greenville, S. C.

T-306 The Story Of Starches. History and information on manufacture and use of starches. National Starch Products, Inc., 750 Third Ave., New York 17, N. Y.

T-307 Loading System. Pneumatic loading system for Saco-Lowell slasher. The Foxboro Company, Foxboro, Mass.

T-308 Steel Warp Beams. Beams for both broadloom and narrow fabrics. Milton Machine Works, Inc., Milton, Pa.

T-309 Penford Gums In Textiles. Describes their excellent properties for warp sizing spun yarns. Penick & Ford Ltd., Inc., 420 Lexington Ave., New York 17, New York.

T-310 Saco-Lowell Positrol Slasher. Includes advantages, photographs, cut-away drawings. Saco - Lowell Shops, 60 Batterymarch St., Boston 10, Mass.

T-311 Rotary Unions. Cut costs, get better sealing on can dryers. Perfecting Service Company, 332 Atando Ave., Charlotte, N. C.

T-312 Air Slasher Dryer. Shows construction and operating details. Proctor & Schwartz, Inc., 7th St. and Tabor Rd., Philadelphia 20, Pa.

T-313 Butt-Tacking Sewing Machine. Describes operation, installation of single thread butt-tacking sewing machine. The Merrow Machine Co., 28 Laurel St., Hartford, Conn.

T-314 Loom Reed Booklet. Describes in detail a variety of reeds. Steel Heddle Mfg. Co., 2100 West Allegheny Ave., Philadelphia 32, Pa.

T-315 Cocker Equipment. Information on warp sizer, beam warper, creels, tensions, back-winders, etc. Cocker Machine & Foundry Co., Gastonia, N. C.

T-318 Formulas For Slashing Arnel. Includes also information on warping, weaving and quilling. Textile Sales Dept., Celanese Corp. of America, P. O. Box 1414, Charlotte 1, N. C.

T-319 Eclipse Starches For Textiles. Data sheet describes use of thin-boiling starches in the textile industry, with particular emphasis on warp sizing. Physical and chemical data included. A. E. Staley Mfg. Co., Decatur, Ill.

T-320 Textile Accessories. Gives specifications of Gates textile accessories in handy pocket booklet. The Gates Rubber Co., 1001 Broadway, Denver 17, Colorado.

T-321 Cocker Slashers. Complete specifications and advantages, including allied equipment. Cocker Machine & Foundry Co., Gastonia, N. C.

T-322 Mounts For Looms. Vinyl mount eliminates need for bolts or paste. Clark, Cutler, McDermott Co., 106 W. Central St., Franklin, Mass.

T-323 Unifil Loom Winder. Describes new concept of filling preparation which needs no quilling area. Universal Winding Co., P. O. Box 1605, Providence, R. I.

T-324 Aligning Lays. Setting instructions for step-by-step aligning. Draper Corporation, Hopedale, Mass.

T-325 Traveling Loom Cleaner. Advantages of the new Oscillaire loom cleaner. Parks-Cramer Co., Fitchburg, Mass.

T-326 Draper Repair Parts Catalog. Contains illustrations covering all mechanisms and construction with complete listings. Draper Corporation, Hopedale, Mass.

T-327 Baling Presses. Describes complete line of motor-driven and hydraulic baling presses. Logemann Brothers Co., 3150 West Burleigh St., Milwaukee, Wis.

T-328 Textile Machinery Parts Catalog. Describes complete line of Dayco and Thorobred textile parts. Dayton Rubber Co., Dayton, Ohio.

T-329 Counting Devices. Describes complete line of counters for every application. Trumeter Company, 38 W. 32nd St., New York 1, New York.

T-331 Static Bars. Humorously illustrates how static can be overcome. The Simco Co., 920 Walnut St., Lansdale, Pa.

(Continued on next page)

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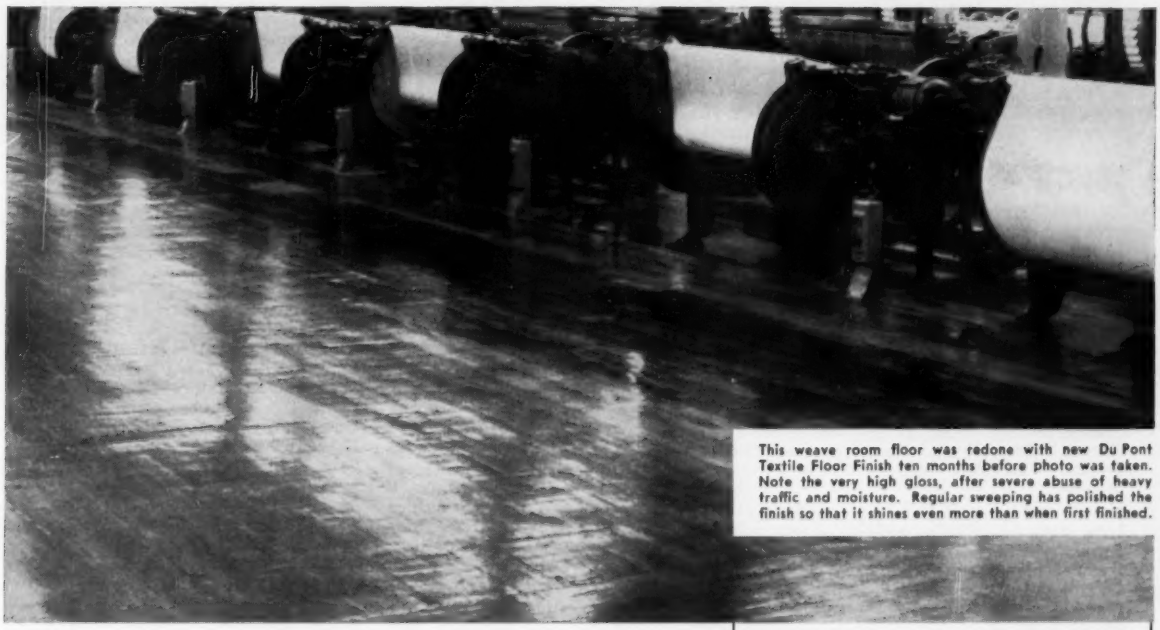

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Tests prove that this new oil-free clear floor finish has wearability and gloss retention three times greater than the finest varnishes. It requires dramatically less maintenance in textile plants—sticky accumulations of lint and starch don't stick to it! Under development both in Europe and U. S. for nine years, Du Pont's new Textile Floor Finish resists all kinds of wear. Hard, yet flexible, it resists corrosion, chemicals, solvents, water, abrasion, traffic, impact and high temperatures. It's ideal for concrete or wood floors. For complete information call your Du Pont representative or mail the coupon now!

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T-332 Care Of Draper Shuttles. Describes how longer, troublefree service may be obtained. Draper Corporation, Hopedale, Mass.

T-334 Largest Slasher Order in History. Folder tells why Springs Cotton Mills bought 25 multi-cylinder slashers. West Point Foundry & Machine Co., West Point, Ga.

T-336 One - Piece Sizing Agent. Houghto-Size CW provides low kettle cost, results in free-running warp of high breaking strength, increasing weaving efficiency. E. F. Houghton & Co., 303 West Lehigh Ave., Philadelphia 33, Pa.

T-339 Helicione Loom Cleaner. Details on how it cuts costs, improves quality, reduces fire hazard. American Moistening Co., Cleveland, N. C.

T-340 Custom-Tailored Latex. Information on Vulcanols, latex based formulations which provide dimensional stability, firm pile anchorage, non-skid, non-fray, and the desired hand. Alco Oil & Chemical Co., Trenton Ave. and William St., Philadelphia 34, Pa.

T-341 Cloth Guides. Buletin 22.1 provides application diagrams and illustrations. GPE Controls, Inc., 240 E Ontario St., Chicago 11, Ill.

T-342 Hydraulics in Slasher Drives. Describes characteristics of petroleum base and fire-resistant hydraulic fluids, how to select best fluid for a given job. Vickers, Inc., Box 302, Detroit 32, Michigan.

T-343 Laminated Carpet Covers. Complete information on Rol-Lap Carpet Covers with cemented seams. Bemis Bros. Bag Co., St. Louis 2, Missouri.

T-344 Table Model Carpet Tufter. Literature on table model carpet machine which has yardage machine features. Makes throw-rugs or yardage, in cut or loop. Broad Street Machine Co., 2614 Broad St., Chattanooga 8, Tenn.

T-345 Tufting Machines. Literature on complete line of Cobble high speed tufting machines, including bedspread, throw rug, "carved" rug and two color rug machines. Cobble Bros. Machinery Co., Riverside Dr., Chattanooga, Tenn.

T-346 Facts On Non-Wovens. Fact file on non-wovens tells of new machinery, new methods of handling fibers, new bonding agents, etc. Curlator Corporation, Textile Div., E. Rochester, N. Y.

T-347 New Drying System. Describes high capacity, custom engineered drying equipment for tufted plants. Dalton Sheet Metal Co., Inc., Dalton, Ga.

T-351 Automatic Stop Motion. Complete information available on automatic stop motion for Titan warp tying-in machine. Edda International Corp., 468 Fourth Ave., New York 16, N. Y.

T-352 Automatic Guiding Equipment. Catalog shows various types of automatic guiding equipment for accurate cloth guiding. Fife Mfg. Co., Inc., P. O. Box 9815, Oklahoma City, Okla.

T-353 Backing for Tufteds How to get your tufting necessities with one telephone call. Fulton Bag and Cotton Mills, Atlanta, Ga.

T-354 The Story Of Latex. Booklet describes origin, history and uses of latex. Includes list of industrial applications. General Latex and Chemical Corp., 666 Main St., Cambridge 39, Mass.

T-355 Non-Woven Fabrics. Booklet gives outline of nature and history of non-woven and the manufacturing techniques of today. Booklet 56-219A, Chemical Div., Goodyear Tire & Rubber Co., Akron 16, Ohio.

T-358 Loom Supplies. Information on rod lubricant and applicator, sponge leather bunter, picker. Garland Mfg. Co., 54 Water St., Saco, Me.

T-359 Pressure Sensitive Tapes. Brochure tells of applications in yarn spinning, weaving, finishing, rug manufacturing, etc., Minnesota Mining & Mfg. Co., St. Paul 6, Minn.

T-360 Supplies For Tufters. Information on yarns for rug tufting or chenille or carpet backing. Piedmont Cotton Mills, East Point, Ga.

T-361 Eclipse Starches for Textiles. Data sheet describes use of thin-boiling starches in the textile industry, with particular emphasis on warp sizing. Physical and chemical data included. A. E. Staley Mfg. Co., Decatur, Ill.

T-362 Size That Satisfies. Information on getting the correct size package for your mill. Also on Bingham line of slasher rolls. Stodghill & Co., 716 Ponce de Leon Place, Atlanta, Georgia.

T-363 Rubber Covered Slasher Rolls. Handy booklet tells how to get longer life and better performance from rubber covered rolls. Includes data on handling, storing and grinding. Stowe-Woodward, Inc., Dept. C., 181 Oak St., Newton Upper Falls 64, Mass

T-366 Loom Supplies. Complete information on supplies for cam and dobby looms. Louis P. Batson Co., P. O. Box 772, Greenville, S. C.

knitting

T-401 Singlehead Full - Fashioned Machine. Literature on request from the Wildman-Jacquard Div., Draper Corp., Hopedale, Mass.

T-402 Forged Head Aluminum Beams. Gives specifications on new high-yardage beams. Milton Machine Works, Inc., Milton, Pa.

T-403 Raschel Knitter. Describes new Raschel-type knitting machine. Kidde Textile Machinery Corp., Inc., Farrand St., Bloomfield, N. J.

T-406 Needle Oil Does Not Stain. Details on "Gulftex 39" developed for knitting mills. Gulw Oil Corp., P. O. Box 1106, Pittsburgh 30, Pa.

T-407 Knitting Machines. Information on Wildman "TFS" 30" single section F-F machines and "AL" 32" diameter 32-feed "single purpose" circular interlock machine (rib type). Wildman-Jacquard Div., Draper Corp., Hopedale, Mass.

T-409 Knit Goods Finishing Machinery. Data on calenders, shrinkers, curers, extractors, steamers. Tubular Textile Machinery Corp., 33-61 54th St., Woodside, N. Y.

T-410 "Reading" Type 60 F-F Knitting Machine. Information about the new "Reading" Type 60, 38-section automatic full-fashioned hosiery knitting machine. Write Textile Machine Works, Reading, Pa.

T-411 Double Life of Knitting Cams. Technical information on how Chromalloy diffusion process produces a wear-resistant chromium carbide surface on knitting cams. Chromalloy Corp., 450-D Tarrytown Rd., White Plains, N. Y.

wet processing

T-501 Tubes For Package Dyeing. Describes Dytex tubes for one-time use. Sonoco Products Co., Hartsville, S. C.

T-502 Finishing Machinery. Text and photographs of complete line of machinery. Marshall and Williams Corp., 46 Baker St., Providence, R. I.

T-503 Water Analysis. Includes tables, conversion factors, indicators, standard solutions. Solvay Process Div., Allied Chemical Corp., 61 Broadway, New York 6, N. Y.

T-504 Urea Formaldehyde. Literature on urea formaldehyde or U.F. concentrate-85. Dept. CUFI-29-1, Nitrogen Div., Allied Chemical Corp., 40 Rector St., New York 6, New York.

T-505 Acid Mordant Blue B. Details on Acid Alizarine Blue B for bright navy shades. Zinsser & Co., Inc., Hastings-on-Hudson 6, New New York.

T-506 Cationic Surface Active Agent. Describes Uversoft "D." Harshaw Chemical Co., 1945 East 97th St., Cleveland 6, Ohio.

T-508 Peroxide Bleaching System. Illustrates and describes this continuous system. E. I. du Pont de Nemours & Co., Electrochemical Dept., Wilmington, Del

T-509 Surface Tension Depressant. Tells how product can be used for wetting, dye leveling or as a penetrant. Hart Products Corp., 1440 Broadway, New York, N. Y.

T-510 Textile Chemicals. Describes leading products for wet processors. Royce Chemical Co., Carlton Hill, N. J.

T-511 Brine For Textile Industry. Describes Lixate process for making brine. International Salt Co., Inc., Scranton, Pa.

T-512 Depuma. Describes odorless, viscous, non-evaporating emulsion for anti-foam. Koppers Co., Inc., Chemicals & Dyestuffs Div., 2010 Clarke Bldg., Pittsburgh 19, Pa.

T-513 Catalyst AC-6. Tells how curing efficiency may be stepped up as much as 25%. Monsanto Chemical Co., Plastic Division, Springfield 2, Mass.

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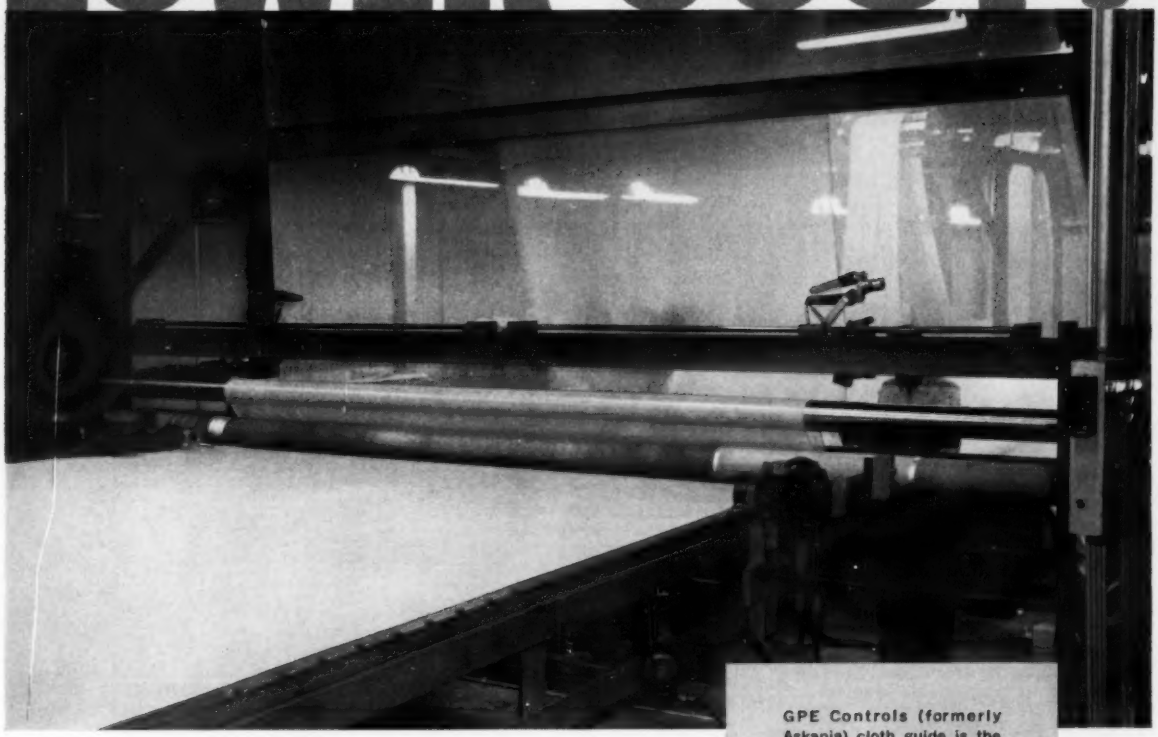

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T-514 Soda Ash Bulletin. Contains useful data covering this subject. Solvay Sales Division Allied Chemical Corp., 40 Rector St., New York 6, New York.

T-517 Chemical Catalog. Lists products with chemical composition, properties and applications. Antara Chemicals Div., General Aniline & Film Corp., 435 Hudson St., New York 14, New York.

T-519 Hydraulic Power Units. Describes unit for operating hydraulic textile machines. B. F. Perkins & Son, Inc., Holyoke, Mass.

T-522 Cut Water Treatment Costs. Describes the control of scale, slime, algae and corrosion. Oakite Products, Inc., 126C Rector St., New York 6, New York.

T-523 Rapidase For De-Sizing. The properties and characteristics of Rapidase in detail. Wallerstein Co., Inc., 180 Madison Avenue, New York 16, N. Y.

T-525 Guiders And Tension Devices. Straight line guiding of open width goods. Mount Hope Machinery Co., 15 Fifth St., Taunton, Mass.

T-526 Hycar Latices. Physical properties and typical fields of application. B. F. Goodrich Chemical Co., 3135 Euclid Ave., Cleveland 15, O.

T-527 Sodium Hydrosulfite. Literature and test samples are available on "T-C Hydro." Tennessee Corp., 617-629 Grant Bldg., Atlanta, Ga.

T-528 Ethanolamines. Lists application, chemical and physical properties. Nitrogen Division, Allied Chemical Corp., 40 Rector St., New York 6, New York.

T-530 Ball Bearing Turn Table. Describes 48-inch steel turn table for mills. Birch Brothers, Inc., 32 Kent St., Somerville, Mass.

T-531 Rotary Dyeing Machine. For use in dyeing hosiery, hats, gloves, socks, etc. Turbo Machine Co., Lansdale, Pa.

T-532 Micro Switch For Wet Process. Advantages and applications in dyeing, bleaching, finishing. Micro Switch Div., Minneapolis-Honeywell Regulator Co., Freeport, Ill.

T-534 Dyeing and Finishing Machinery. Complete line presented in series of catalogs. Birch Brothers, Inc., 32 Kent St., Somerville 43, Mass.

T-535 Dyeing, Bleaching and Drying Equipment. Complete line for cotton, wool and synthetics described. Color pictures. Morton Machine Works, 1718 3rd Ave., Columbus, Ga.

T-536 Napthol Ratios Slide Chart. Quickly and accurately enables operators to determine Napthol Ratios. Alliance Color & Chemical Co., 33 Ave. P, Newark 5, New Jersey.

T-537 "PCB" Rock Salt. Tells how product saves money, eliminates bad dyeing. Morton Salt Co, Industrial Division, 120 So. LaSalle St., Chicago 3, Ill.

T-538 Wool Oils. Describes influence of wool oils in producing quality yarns and fabrics. Procter & Gamble Dist. Co., Gwynne Bldg., Cincinnati, Ohio.

T-540 Penford Finishing Gums. Complete data, including physical properties. Penick & Ford Ltd., Inc., 420 Lexington Ave., New York 17, New York.

T-541 Regeneration Of Zeolite Water Softeners. Explains advantages of Lixate Process. International Salt Co., Scranton, Pennsylvania.

T-542 Dyeing Synthetic Fibers. Detailed analysis of methods and materials. General Dyestuff Co., 435 Hudson St., New York 14, New York.

T-543 Industrial Brushes. Features use on shears, printing machines. M. W. Jenkins' Sons, Inc., 444 Pompton Ave., Cedar Grove, N. J.

T-544 Waste Heat Recovery Describes system of waste heat recovery from polluted water. Ludell Mfg. Company, 5200 West State Street, Milwaukee, Wis.

T-545 Washers For Scouring, Bleaching, Acidifying. Describes highcapacity, continuous process washers. C. G. Sargent's Sons Corp., Graniteville, Mass.

T-546 Naphthol for Lightfast Browns. Booklet describes new, straight, nonsubstantive naphthol, Naphthol AS-BN, for the continuous naphtholation of cotton and rayon piece goods in the dyeing of economical, fast-to-light browns. General Dyestuff Co., 435 Hudson St., New York 14, New York.

T-547 Softener, Lubricant, Napping Aid. Technical information available on softener, lubricant and napping aid for natural and synthetic fibers, yarns and fabrics. Nopco Chemical Co., Harrison, N. J.

T-548 Handbook on Methocel. Gives technical information and use data on family of methylecellulose ethers called Methocel. Organic Chemicals Sales, The Dow Chemical Co., Midland, Mich.

T-549 Wall Charts For Handling, Testing H_2O_2 Two 16" x 21" wall charts available, one on handling and the other on testing H_2O_2. Becco Chemical Div., Food Machinery & Chemical Corp., Buffalo 7, N. Y.

T-550 Polyvinyl Acetate Emulsion. Bulletin contains a description of Celanese emulsions and cites advantages of Celanese polyvinyl acetate emulsions in textile finishing. Celanese Corp. of America, Plastics Div., 744 Broad St., Newark 2, N. J.

T-554 Instrument Catalog. Complete information on industrial instrument accessories and supplies. Includes specifications, parts numbers and prices. Catalog 500, Foxboro Co., Foxboro, Mass.

T-555 Drying Tumblers. Details on fast, efficient open-end tumblers. Huebsch Manufacturing Co., 3775 N. Holton St., Milwaukee 1, Wisconsin.

T-556 Hunter Dyeing Equipment. Describes fully with diagrams Hunter Model A Dye Becks, Hunter No/Lap Reels, Model S Dye Kettles, Open Width Dye Kettles, Sample Dye Kettles. James Hunter Machine Co., North Adams, Mass.

T-557 High Activity Catalyst. Technical bulletin describes new catalyst AC-6 which provides increased activity, excellent bath life, minimum odor formation, etc. Monsanto Chemical Co., Plastics Div., Springfield, Mass.

T-558 Cationic Dye Leveler. Bulletin TX-34 gives new information on dye leveler for acid colors on nylon tricot and wool through use of Nopco 1425-B. Nopco Chemical Co., Textile Chemicals Div., Harrison, N. J.

T-559 Flow Control Complete information on largest selection of values to handle flow control requirements. William Powell Co., 2525 Spring Grove Ave., Cincinnati 22, Ohio.

T-560 Profitable Curing. Complete story on profit-making loop curers and roller curers. Proctor & Schwartz, Inc., Seventh and Tabor Rd., Philadelphia 20, Pa.

T-561 Pump Pourable Pastes. Bulletin tells how Moyno pumps can pump any textile liquid that can be forced through a pipe, even if highly viscous or corrosive. Robbins & Myers, Inc., Springfield, Ohio.

T-563 Polyethylene Finishing Agent. Booklet contains information needed to adopt Emulsifiable A-C polyethylene as a finishing agent to any particular process. Semet-Solvay Petrochemical Div., Allied Chemical Corp., 5th Floor T, Rector Street, New York 6, N. Y.

T-564 Hydrogen Peroxide Bleaching. Booklet discusses advantages, operating details and savings in chemical costs of Activated Hydrogen Peroxide Bleaching Process for Cotton. Solvay Process Div., Allied Chemical Corp., 61 Broadway, New York 6, N. Y.

T-566 Ethylex Gums. Brochure describes properties of hydroxy ethyl ether derivatives of corn starch. Applications of these noncongealing gums in warp sizing and finishing covered. A. E. Staley Mfg. Co., Box 151, Decatur, Ill.

T-567 Superlose and Ramalin Describes the physical and chemical properties possessed by these two principal components of potato starch. Colloid Dept., Stein, Hall & Co., Inc., 285 Madison Ave., New York 17, N. Y.

T-570 Carpet Dryers. Details, pictures, drawings on driven roll, conveyor, and tenter types. Andrews and Goodrich Div., 336 Adams St., Boston (Dorchester), Mass.

T-571 Chainless Mercerizing Machine. Two new bulletins provide complete information on the Benninger Chainless Mercerizing Machine for piece goods. H. W. Butterworth & Sons Co., Bethayres, Pa.

T-572 Dyeing Machinery for Every Purpose Illustrated literature available on complete line of automatically controlled machinery. Gaston County Dyeing Machine Co., Stanley, N. C.

T-573 Textile Finishing Machinery. Folder available from Marshall and Williams Corp. contains photographs of each piece of finishing equipment manufactured by the firm. Request from Marshall and William Corp., 46 Baker St., Providence, R. I.

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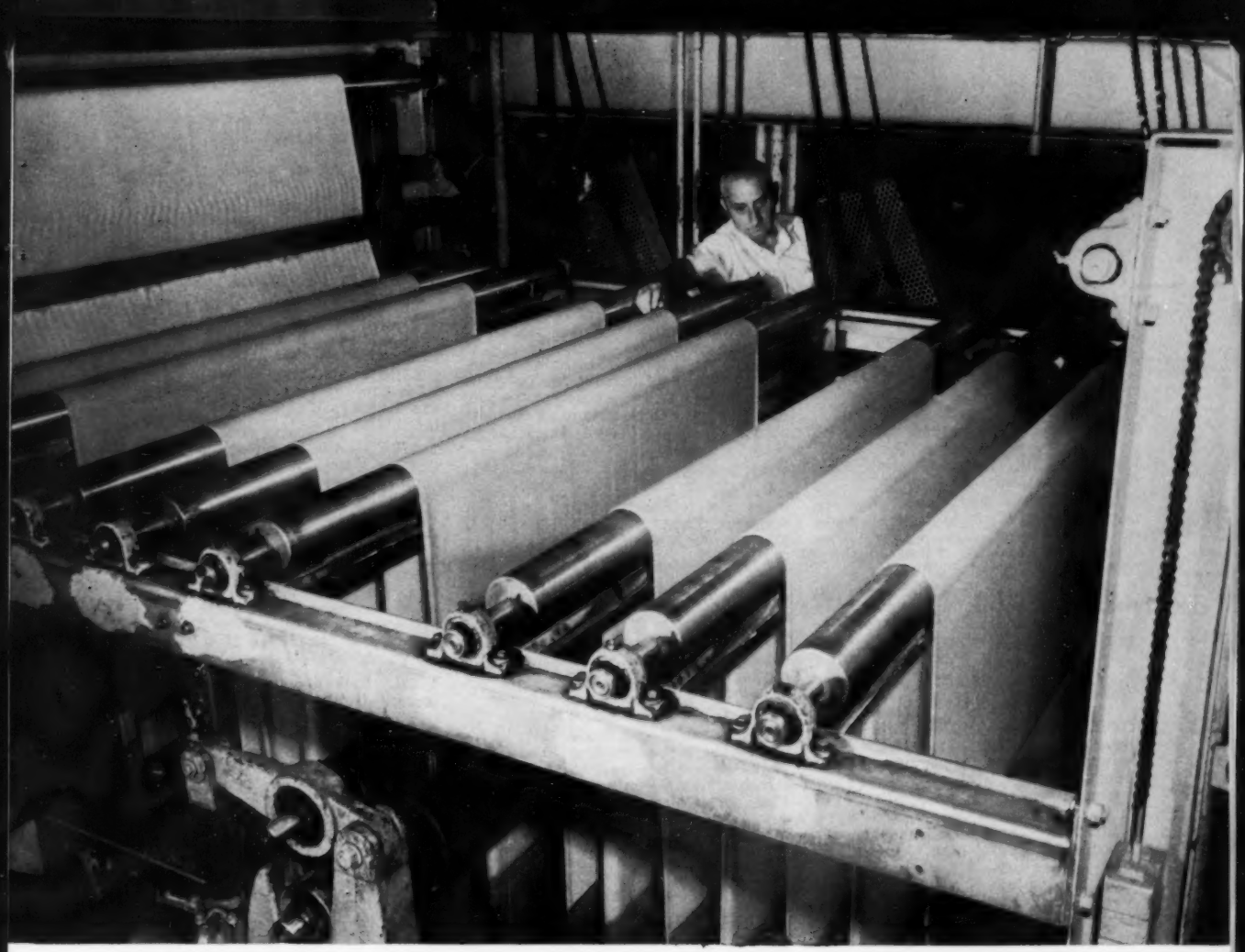

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T-575 Rotary Unions and Traps. Complete details on various types of rotary unions and steam traps, including specifications, operating pressures, etc. Perfecting Service Co., 332 Atando Ave., Charlotte, N. C.

T-576 Yarn Preparation. Describes products for yarn preparation, printing, finishing. Polymer Industries, Springdale, Conn.

T-577 Stainless Dry Cans. Information on stainless steel, 75 psi, reverse dished, head dry cans. Can be furnished Teflon-coated if desired. Sims Metal Works, West Point, Ga.

T-578 Color Sells—Yes. Bulletin No. 262 on lighting for critical viewing or color matching. Macbeth Daylighting Corp., Newburgh, N. Y.

fibers and yarns

T-601 Fortisan-36. New Textile Fiber. Includes charts, diagrams, text, presents technical properties. Textile Sales Dept., Celanese Corp. of America, P. O. Box 1414, Charlotte, N. C.

T-602 Caprolan Nylon Heavy Yarns. Describes strength, long flex life and ready dyeability. Fiber Sales Dept., National Aniline Div., 261 Madison Ave., New York 16, N. Y.

T-603 Rayon—Mile By Mile. Details on how rayon is produced mile by mile, perfect inch by inch. Industrial Rayon Corp., 500 Fifth Avenue, New York 16, N. Y.

T-604 The Chemstrand Nylon Story. Describes the birth and growth of Chemstrand Nylon. Chemstrand Corp., 350 Fifth Ave., New York 1, N. Y.

T-605 Color-Fast Fibers. Further information on "Coloray," Courtauld's solution dyed rayon staple which is a contribution to colorfastness in fabrics. Courtaulds (Alabama) Inc., 600 Fifth Ave., New York 20, N. Y.

T-606 "Dial-A-Fiber." Ingenious circular chart indicates properties and compatabilities of "Uvitex" for application on natural and synthetic fibers. Ciba Co., Inc., Technical Dept., 627 Greenwich St., New York 14, New York.

T-607 The Story On Lurex. Information on metallic yarns made with Mylar and how they are developed to broaden the scope of the tufted industry. Textile Fibers Dept., The Dow Chemical Co., James River Div., Williamsburg, Va.

T-608 Taslan Textured Yarns. Technical information on dyeing and finishing of new fabrics made with Taslan. E. I. du Pont de Nemours & Co., Wilmington 98, Delaware.

T-609 Processing Nylon Staple. Data sheet describes method of processing Du Pont 420 Nylon Staple in blends with cotton. Covers complete operation through sizing. Bulletin N-93, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

T-610 Aluminum Yarns. Folder available containing actual samples of vari-colored aluminum yarns. Reynolds Metals Co., Reynolds Metals Bldg., Richmond, Va.

T-611 Candlewick Tufting Yarns. In cotton, rayon, nylon and blends . . . a "put up" for every need. Candlewick Yarn Co., Dalton, Ga.

laboratory

T-701 Testing Instruments. Descriptions of 37 instruments for testing textiles. Custom Scientific Instruments, Inc., 541 Devon St., Kearny, N. J.

T-702—Metal Detector. Spot troublesome metal before it harms equipment or fabrics. Radio Corp. of America, Dept. S-271, Building 15-1, Camden, N. J.

T-703 Shadograph Weighing Devices. Pictures and information on various types of scales. Exact Weight Scale Co., Columbus 8, Ohio.

T-705 Strobotac. Measures speed of rotating, reciprocating or other cyclic motions. General Radio Co., 275 Massachusetts Ave., Cambridge 39, Mass.

T-706 Yarn Count Scale. Data sheet tells how direct-reading instrument provides fast, accurate method of determining yarn number. Exact Weight Scale Co., Columbus 8, Ohio.

T-707 Maintenance Information for Scott Testers. Booklet contains maintenance data for calibration of Scott Testers, clamps for testers, gearbox lubrication, and recording. Scott Testers, Inc., Providence, R. I.

T-712 Automatic Moisture Control. Booklet tells how Hunter Electro-Psychrometers are used in measuring percentage of moisture in all classes of textiles, whether yarns or fabrics. Hunter Controls, Inc., Div., James Hunter Machine Co., North Adams, Mass.

services for management

T-801 Factoring Service. Details on advantages of factoring, including information on general banking and pension plans. Trust Company of Georgia, Atlanta, Ga.

T-802—Non-Woven Fabrics. Report includes how non-woven fabrics are made, machinery involved, sample fabrics. Textile Fibers Dept., E. I. du Pont re Nemours & Co., Inc., Wilmington 98, Del.

T-807 Group Insurance. Information on how textile group insurance can insure the happiness of your employees and make for a better running mill. Provident Life and Accident Insurance Co., Group Dept., Chattanooga, Tenn.

T-808 Factoring. Complete details on services offered as mill factors. L. F. Dommerich, 271 Madison Ave., New York, N. Y.

T-809 Move Key Men Quickly. Industrial airplanes help keep your key men from being stuck on one job at a time. Southern Airways Co., P. O. Box 718, Atlanta, Ga.

T-810 The Wonalancet Way is the title of an editorial booklet published five times a year dealing with current problems which appear worthwhile at the time they are written Write Wonalancet Company, 128 Burke St., Nashua, N. H.

T-811 Electrical Contracting. Details on services available to the textile industry. J. M. Clayton Co., 78 Simpson St., N.W., Atlanta 1, Ga.

T-812 Beechcrafts at Work. Booklet available from Southern Airways Company shows how Beechcraft executive airplanes can save executives time ond money. Write Southern Airways Co., P. O. Box 718, Atlanta, Ga.

T-818 Textile Engineering. Information on complete, integrated service covering every type of textile project. Robert & Co. Assoc., 96 Poplar St., N. W., Atlanta 3, Ga.

T-819 Organized Lubrication Pays. Planning book entitled "Management Practices that Control Costs via Organized Lubrication" shows how to effect savings in five areas of plant operation. Available from The Texas Co., 135 E. 42nd St., New York 17, N. Y.

T-821 Inventory Control. How a study of paperwork in one textile mill revealed that a daily report of inventory condition could be mechanically produced on existing business machines with a net direct payroll saving of more than $10,000 a year is reported in booklet available from Administrative Methods Dept., Werner Textile Consultants, 1430 Broadway, New York, N. Y.

plant operation

T-902 Belt Lacing Equipment. Includes prices, specifications, etc. Clipper Belt Lacer Co., Grand Rapids, Michigan.

T-903 "Motor Selector." How to select a-c motors for specific application. Bulletin B-2103. Reliance Electric & Engineering Co., 24701 Euclid Ave., Cleveland 17, Ohio.

T-905 Rotary Pressure Joints. Details on self-lubricating, self-adjusting, self-aligning joints. The Johnson Corp., Three Rivers, Mich.

T-907 Wrap Up Lint Problems. Automatic lint filter removes lint from air, winds it into disposable roll. Bulletin 234, American Air Filter Co., 275 Central Ave., Louisville 8, Ky.

T-908 Textile Motors. Bulletin describes complete line of textile motors. Diehl Mfg. Co., Finderne Plant, Somerville, N. J.

T-911 Leather Belting. Selection, installation, proper maintenance. Atlanta Belting Co., 508-510 Whitehall St., S. W., Atlanta, Ga.

T-912 Story of Nylon Bristle. Tells of discovery and production, with special attention to "Tynex," a form of nylon ideal for use in brushes. M. W. Jenkins' Sons, Inc., 444 Pompton Ave., Cedar Grove, N. J.

T-914 Industrial Greases. Describes multi-purpose lithium soap industrial greases. Sinclair Refining Co., 600 Fifth Ave., New York, New York.

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T-917 Blowers And Exhausters. Full description, including detailed drawings. Buffalo Forge Co., 490 Broadway, Buffalo 5, N. Y.

T-918 Paint Stripping Booklet. Explains simplified method of stripping paint. Oakite Products, Inc., 22 Thames St., New York 6, New York.

T-921 Catalog Of Needle Bearings. Design, application for five types of needle bearings. The Torrington Co., Torrington, Conn.

T-924 Ball Bearings For Textile Machinery. Bearings for all phases of textile processing. The Fafnir Bearing Co., New Britain, Conn.

T-925 Lubrication Of Bearings. Helpful list of do's and don't to prolong bearing life. New York & New Jersey Lubricant Co., 292 Madison Ave., New York 17, New York.

T-927 Flexible Couplings. Tells how to select "Sure-Flex" couplings. Five tables short-cut the usual engineering calculations. Bulletin #10100, T. B. Wood's Sons Co., Chambersburg, Pa.

T-928 Controls For Heating, Air-Conditioning. Catalog describes and illustrates line of automatic controls for heating, ventilating and air-conditioning control systems. Barber-Colman Co., Rockford, Ill.

T-929 New Air Conditioners. Bulletin describes new line of AAF-Herman Nelson Air Conditioning Units, featuring the Roll-O-Vent automatic air filter. American Air Filter Co., Inc., Louisville 8, Ky.

T-930 Dry Fluid Drive. Booklet describes how Flexidyne offers a new approach to difficult drive problems through the use of steel shot as a "liquid." Dodge Mfg. Corp., 1000 Union St., Mishawaka, Ind.

T-931 New V-Belt Drives. Bulletin contains information on selection and operation of V-belt drives. Covers all types of V-belt drives. Dodge Mfg. Corp., Mishawaka, Ind.

T-932 Smooth Acceleration, Deceleration. Describes eddy - current equipment for smooth, stepless acceleration and deceleration. Eaton Mfg. Co., 3307 14th Ave., Kenosha, Wis.

T-933 Catechism Of Electric Machinery. Booklet contains complete technical treatise on various electrical machines. Electrical terms defined. Fairbanks, Morse & Co., Fairbanks-Morse Bldg., Chicago 5, Illinois.

T-934 Vibration Control. Special facts kit shows mountings for textile machinery. Also provides data for proper selection of thickness and density. The Felters Co., 212 S Street, Boston 11, Mass.

T-937 V-belts. Tells how raw materials and finished belts are tested and inspected. Quality control and experimental production covered. Booklet 5-51107, Dept. 794, Goodyear Tire & Rubber Co., Akron 16, Ohio.

T-939 Lubricant Pumps. Catalog features new line of air-motor operated lubricant pumps. Covers design and engineering features, lubricant-output-performance and selection charts. Catalog No. 65, Lincoln Engineering Co., 5702-15 Natural Bridge Ave., St. Louis 20, Missouri.

T-941 Switches Cut Production Cost. Tells how switches make various textile operations more automatic, safer, and more productive. Micro Switch Div., Minneapolis-Honeywell Regulator Co., Freeport, Illinois.

T-942 Central Station Air Conditioning. Booklet describes controlled ventilation, air circulation, air washing, humidifying, evaporative cooling which are available through central station air conditioning. Parks-Cramer Co., Fitchburg, Mass.

T-944 Static Eliminator. Tells how to eliminate static safely, simply and inexpensively. Simco Co., 980 Walnut St., Lansdale, Pa.

T-946 Lubricants For Textiles. Gives description of bearing lubricants, spindle oils, etc. Georgia-Carolina Oil Co., Box 101, Macon, Ga.

T-947 Detect, Extinguish Fires. Describes portable and built-in extinguishers; smoke detecting and rate-of-rise fire detecting systems. Catalog "P-40," Dept. "A," Walter Kidde & Co., Inc., Main St., Belleville 9, N. J.

T-948 New Lubricated Plug Valves. Semi-steel and steel lubricated plug line. The William Powell Co., 2525 Spring Grove Ave., Cincinnati 22, Ohio.

T-951 Organized Plant Lubrication. This subject, including how to go about it, is discussed at length in the July, 1958, issue of "Lubrication," a Texaco publication. Reprints of that issue are available from The Texas Co., 135 E. 42nd St., New York 17, N. Y.

T-955 Prevent Corrosion of Plain Steel. Describes special C-17 Pre-Krete, a hydraulic cement formula, designed to prevent corrosion or rust of plain steel vessels. Pocono Fabricators, Inc., Div. of Patterson-Kelley Co., Inc., East Stroudsburg, Pa.

T-956 Penetrating Wood Finish. Describes floor seals for textiles. E. I. du Pont de Nemours & Co., Inc., Finishes Div., Wilmington, Del.

T-957 Pipe Threading Tools. Capacities and weights included along with pictures. Ridge Tool Co., Elyria, Ohio.

T-958 Stainless Steel Fabrication. Information on ventilating and drying, slasher exhaust, and materials handling in stainless. Sims Metal Works, West Point, Ga.

T-962 Industrial Floor Finishes. 16-page book contains specifications and descriptions of industrial floor finishes for textile use. Includes directions for application. Minnesota Paints, Inc., 1101 Third Street, South, Minneapolis, Minn.

T-963 Humidification by Graduvac. Bulletin gives details on gravity type atomizer control system and tells how supply of water to atomizers is automatically regulated. Parks-Cramer Co., Fitchburg, Mass.

T-967 Tailor-Made Gears. Information on textile and industrial gears for every purpose from iron, steel, bronze, rawhide, Bakelite, and made to specification. Ferguson Gear Co., Gastonia, N. C.

T-968 Liquid Lint Dispersant. Details on how Lintoff G-36 prevents lint and sizing compound from sticking in the eliminator plates of central station air washers. Industrial Products Co., 185 Harris St., N. W., Atlanta, Ga.

T-969 Multifak Lubrication. How you can simplify lubrication in your mill by using Multifak, the low cost multiple purpose textile lubricant. The Texas Co., 135 E. 42nd St., New York 17, N. Y.

T-970 Johnson Rotary Pressure Joints. Bulletin describing the rotary pressure joint which requires no packing, no lubrication, and no adjustment. Gives installation and maintenance instructions, types, sizes, dimensions, and prices. Request from The Johnson Corp., Three Rivers, Michigan.

materials handling and shipping

T-1005 Tramrail Engineering And Application. Data on how Tramrail equipment can cut handling costs. Cleveland Tramrail Div., Cleveland Crane and Engineering Co., 1036 East 289th St., Wickliffe, Ohio.

T-1007 Materials Handling For Textiles. Shows how fibre trucks can increase efficiency, protect products. National Vulcanized Fibre Co., Wilmington 99, Del.

T-1008 Stresses on Overhead Tracks. Covers track peening, discusses stresses. Cleveland Tramrail Div., Cleveland Crane & Engineering Co., Wickliffe, Ohio.

T-1010 Overhead Materials Handling. Treats twin fan ceiling cleaners and shock proof electrification as well. Louden Machinery Co., Fairfield, Iowa.

T-1012 Improved Materials Handling. "Materials in Motion" describes use of fibre containers. National Vulcanized Fibre Co., Wilmington, Del.

T-1013 Trucks Doff, Store, Become Spooler Tray. Brochure tells how mobile boxes are being used as doff boxes, storage boxes, and spooler trays on Barber-Colman spooler. Fisher Mfg. Co., Hartwell, Ga.

T-1014 Carpet Cores, Storage Tubes. Literature on simplified storage and better cores for rugs. Sonoco Products Co., Hartsville, S. C.

T-1015 Overhead Conveyor. Catalog features "Cable-Way" Overhead Conveyor which has low-cost, ease of installation, quiet operation and long life. Conveyor Division, The American MonoRail Co., Fourth and Franklin Sts., Tipp City, Ohio.

T-1016 Guide To Better Closures. For use as a guide for the evaluation of methods currently in use to effect economy and better production in the closure of fiber board boxes. Acme Steel Products Div., Acme Steel Co., 135th and Perry Ave., Chicago, Ill.

T-1020 Automatic Wrapping. Tells how automatic packaging increases the sales appeal of textile products. Saves labor and materials and adds tamper - proof product protection. Write Hayssen Mfg. Co., Sheboygan, Wis.

Progress and problems of tufted textiles

Staff prepared
Exclusive

RESEARCH and development in tufted textiles have continued unabated over the past year. Much of it is secret; much of it is in use in the form of new yarns, techniques, equipment, outlets, etc. There have been no technological plateaus, although there has not been a development of the impact created by the addition of the cut/loop and controlled needle machines.

The list of new equipment items contains much of interest, however, and much of that list is written in England. The British advances are given in detail in the article "New Techniques Worry British Tufters" which begins on page 99-D of this issue, and since it involves equipment posing a direct threat to tufting, it should be of particular interest to all tufters.

Among the new equipment items produced in the United States is a combination cut and loop pile pattern rug machine that operates with a mechanical-electrical control in models up to 62" in width. From that width to 216" the machines are made with electrical controls. The changeover time from patterned goods to either plain cut or plain loop is "instantaneous," requiring little more than the flip of a switch. Pattern possibilities are unlimited —"anything that can be drawn on a piece of paper"—and the machine can create a height differential between the cut and loop pile.

Secrecy clouds two interesting machines, but until patents are secure and the producers feel the time is ripe for talking, we shall be content to say that one machine, in widths up to 12 feet, permits a pattern change to be made for a very few dollars, will cut selected areas of pile, and is as versatile as a Jacquard. The second unit will produce high and low pile, cut pile, and loop pile all at the same time.

An electrical control is available and is described in detail in the article "The Light Approach to Patterning," beginning on page 109.

MOTHPROOFING

In one area the industry makes progress slowly. A description of carpet finishing written today would read very much like a description written any number of years ago. Of course the chemicals have changed considerably, and many new dyestuffs are to be seen on the shelves. But the equipment is still that which the dyers affirm was never intended for carpet finishing—those outsize becks and jigs.

But, speaking of chemicals, one rather newcomer (to the tufting industry), an insecticide with all the earmarks of the born killer, has moved into the dyehouse.

Woolen carpets treated with dieldrin offer permanent resistance to damage from the black carpet beetle *(attagenus piceus* Oliver) and the webbing clothes moth *(tineola bisselliella)*. For some years the compound has been in use in other countries as a reliable insecticide in concentrations as low as 0.01% (based on wool weight). It is best applied in the dye bath under acid conditions.

A larval poison, it has no effect on beetle or moth eggs. But the moment the larva hatches and begins grazing he is destined for a life that is surely short and probably full of trouble.

Whether the poison must be eaten by the larva, or whether its mere presence is sufficient (in concentrations of 10% or over it is poisonous to human beings by skin contact, inhalation, or swallowing) is immaterial. For all tests show that the larva dies before he can settle down to do any real damage.

The compound has good affinity for wool, resists removal in ordinary cleaning, is applied in concentrations up to 0.05% based on wool weight, and does not break down under light.

MISCELLANY

There are more and more visible symptoms of a maturing industry. Job loads are becoming more and more important, waste control is being rendered to a system, and machinery is so refined that fixers spend most of their time merely "tuning" it. Not so long ago the fixer had to be a blacksmith, a welder, a machinist, a carpenter, and a better-than-average handyman if he kept the needles going with any regularity at all.

That statement is not hard to believe, at least in part, if one bothers to recall that the oldest piece of tufting equipment is still younger than much of the textile equipment that is in use. Many of the looms now running 24 hours per day were installed long before the first tufting machines were conceived, planned, and built.

Considering that progress, one is prone to go along with the pioneer of the tufting industry who said, "It is hard to tell what is coming next, for, with all the progress we have made, from where we now stand the field still seems unlimited. I predict that the next move will be toward machinery that will prepare tufteds without a knitting or weaving principle being involved."

From England, and in perfect agreement with that prediction, comes news of a bit of equipment that prepares "tufted" carpets by crimping sheets of yarn into appropriate loops, troweling polyvinyl chloride over them, and allowing the chemical to dry into a carpet backing. This procedure is described also in the article on page 99-D.

"What You Want When You Want It"

WONALANCET

Carded and Combed

COTTONS and SLIVERS

for
Woolen and Worsted Mills

WONALANCET COMPANY

128 Burke Street, Nashua, New Hamp.
3240 Peachtree Road, N. E., Atlanta, Georgia

ONE COILER EXCELS!

McDONOUGH

There are more McDonough large coilers in use than any other make. Try one in your mill without obligation and learn why.

McDONOUGH POWER EQUIPMENT, INC.
McDonough, Georgia, U.S.A.

ALLEN BEAM COMPANY
NEW BEDFORD, MASS.

Beams for all makes of
High Speed Warpers

LOOM BEAMS

Adjustable Loom Beam Heads

"Good Warps are made on Good Beams"

TURNER TRANSFER INC.

SPECIALISTS

In Full-Fashioned
Hosiery Machine
Moving and
Export Packing

★ ★ ★ ★

SPECIALISTS

In The Moving
Of Long Twisting
and Spinning
Machines

★ ★ ★ ★

Experts for years in the moving of full-fashioned machinery and in export packing, Turner Transfer has also pioneered in the moving of long twisting and spinning machines, using steel trussed skids to move them in one piece. McGlyn-Hayes spinners 54-feet long have been moved from upper to upper floors without dismantling and without breakage of a single part.

Operating throughout the industry, we serve you by trucking and shipping to all parts of the world with the best package that goes to the docks. Years of experience has given us a deep insight into your shipping problems. We have the answer—call us!

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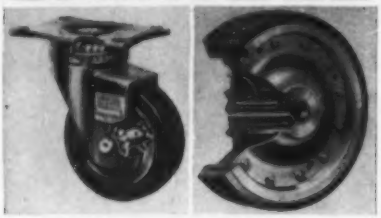
WHEN YOU SPECIFY
CASTERS & WHEELS
...the name to remember
is
DARNELL



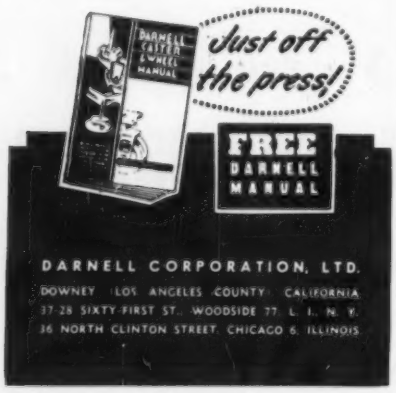
these EXTRA-VALUE
FEATURES
mean top performance
and economy

RUBBER TREADS . . . a wide choice of treads suited to all types of floors, including Darnelloprene oil, water and chemical-resistant treads, make Darnell Casters and Wheels highly adapted to rough usage.

RUST-PROOFED . . . by zinc plating, Darnell Casters give longer, care-free life wherever water, steam and corroding chemicals are freely used.

LUBRICATION . . . all swivel and wheel bearings are factory packed with a high quality grease that "stands up" under attack by heat and water. Zerk fittings are provided for quick grease-gun lubrication.

STRING GUARDS . . . Even though string and ravelings may wind around the hub, these string guards insure easy rolling at all times.



DARNELL CORPORATION, LTD.
DOWNEY (LOS ANGELES COUNTY) CALIFORNIA
37-28 SIXTY-FIRST ST., WOODSIDE 77, L. I., N. Y.
36 NORTH CLINTON STREET, CHICAGO 6, ILLINOIS

MILL NOTES

Wiscassett Mills Co. has added about 1,500 sq ft to its main office building in Albemarle, N. C.

The finishing division plant of **Berkshire-Hathaway, Inc.,** in Lonsdale, R. I., has been closed. Management stated that the move was necessitated because of "the high cost of operation and substantial losses." It was indicated that the firm plans to channel its grey goods to commission finishers.

The first shipments to hosiery retailers have been made by **Berkshire Knitting Mills (Canada) Ltd.** By the end of the year, the firm expects to be producing about 5,500 dozen pairs per week, with production about evenly divided between full-fashioned and seamless hosiery.

Frederick R. Westcott, chairman of the board of **Cabin Crafts,** has entered into a series of international licensing agreements with the Italian textile firm, Lana Rossi. The firm will have access to various patents and techniques perfected by Cabin Crafts in the tufting field, and personnel of the Italian firm will be trained at the Dalton, Ga., mills.

A $1,000 scholarship has been established at the University of Tennessee by **Cherokee Textile Mills,** Sevierville, Tenn., to go to an industrial engineering senior from East Tennessee who is interested in a career in the textile industry. U-T is now offering courses in textile engineering and manufacturing as part of the program in industrial engineering.

Clinton-Lydia Mills, Clinton, S. C., recently inaugurated a series of monthly plant tours designed to acquaint various local groups with the firm's production methods. The first group to be conducted through the mills were representatives of the area farmers. Tours have been scheduled for merchants, teachers, ministers, newspaper and radio

3 COST-CUTTING IDEAS for '59

Finding a way to increase production and reduce waste can often result in substantial savings. Take fabric guiders, for instance . . . . .

MECHO AIR GUIDERS

Here are three ideas that can pay off for you for years to come with these ingenious cost-cutters.

ELIMINATE FABRIC SPOILAGE

Mecho's gentle action and exclusive features eliminate double edges, spattering and other damage to fabric.

SPEED UP FABRIC PROCESSING

by adjusting Mecho's selvage finger tension to handle the lightest fabric or #8 duck at 1 to 400 ypm *while in operation.* It'll stay accurate within 1/8 inch.

REDUCE REPAIRS AND DOWNTIME

with the simplicity of Mecho's precision design . . . no weights or linkages . . . nothing to get out of order.

If you aren't already enjoying these and other cost-cutting advantages of Mecho Air Guider, why not check up now?

Send today for your free copy of the Mecho Air Guider Catalog.

THE Guider SPECIALTY COMPANY

431 W. Rock Ave., New Haven 15, Conn.

SOUTHERN REP.
McSpadden and Scantland
P. O. Box 3635
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EXPORT & NEW ENG. REP.
Standard Mill Supply Company
P. O. Box 1534
Providence 1, R. I.

Announcing the "white" resin!

RESLOOM* E-63

A NEW FINISHING RESIN FOR WHITE WASH & WEAR COTTONS — SHEDS CHLORINE, REDUCES SCORCH DISCOLORATION, KEEPS WHITES "WHITE" AND ODOR-FREE!

Here is the W&W finish that resists chlorine in laundering! White cottons treated with Resloom E-63 come out really white—never "soil-grey"—and they smell fresh, odor free! There's little, if any, discoloration due to scorching, and the cottons are crush-resistant and dimensionally stable. Resloom E-63 can be accurately controlled to create a wide variety of hand. **Write today for complete processing data** to Monsanto Chemical Company, Plastics Division, Room 1196, Springfield 2, Massachusetts.

*RESLOOM, STYMER, LYTRON: REG. U. S. PAT. OFF.

Monsanto

Other Monsanto textile chemicals include Resloom E-50 cyclic urea resins; Resloom HP and M-75 melamine resins; AC Catalysts; Stymer* Sizes; and Lytron* Polystyrene Latices.

MILL NOTES

men, professional men, etc. * * * Effective for 1959, two four-year scholarships are available to employees or sons or daughters of employees with at least three years of continuous service with Clinton-Lydia Mills. The scholarships have a maximum value up to $2400, awarded $600.00 from year to year for four years, provided the student's progress is in line with standards established by the college or university.

A 12,000 sq ft building has been leased in Lincolnton, N. C., and is being occupied by **Consolidated Knitting Mills, Inc.,** formerly located in Florence, S. C. In its new location the firm employs approximately 24 persons. Officials stated that the new location is nearer to material sources and sales outlets.

** first with 13¾" ... then 21" and now 30" diameter forged heads*

MILTON BEAMS*
(for Nylon and rubber yarns)
GIVE YOU THE BIG BONUS OF

SUPER STRENGTH

The super strength of Milton's forged head Tricot and Raschel Beams is no idle claim—it's been proven by yarn producers, big mills and small mills alike!

They're light in weight, yet rugged in design to give true dimensional stability without objectionable deflection or distortion. Milton's forged, heat-treated aluminum alloy heads and extra heavy barrels become a one-piece beam by the continuous weld process first introduced in the field by Milton. Trapped ends of yarn or misalignment of keyways are eliminated because there are no mechanical joints!

You name the yarn . . . monofilament, fine denier, low turn or high twist—synthetics or rubber, Milton gives you true-running, well balanced beams to handle unprecedented yardages and extreme pressures!

WRITE FOR FREE BULLETINS . . . No. 59-A on Light Metal Beams and No. 54-S on Steel Beams. The Milton line includes warp beams for broad, narrow fabric, velvet and carpet looms, as well as light metal raschel, tricot and section beams.

Thirty Years of Dependability in Yarn Beams

MILTON MACHINE WORKS, INC.
DESIGNERS • ENGINEERS • MANUFACTURERS
MILTON • PENNA.

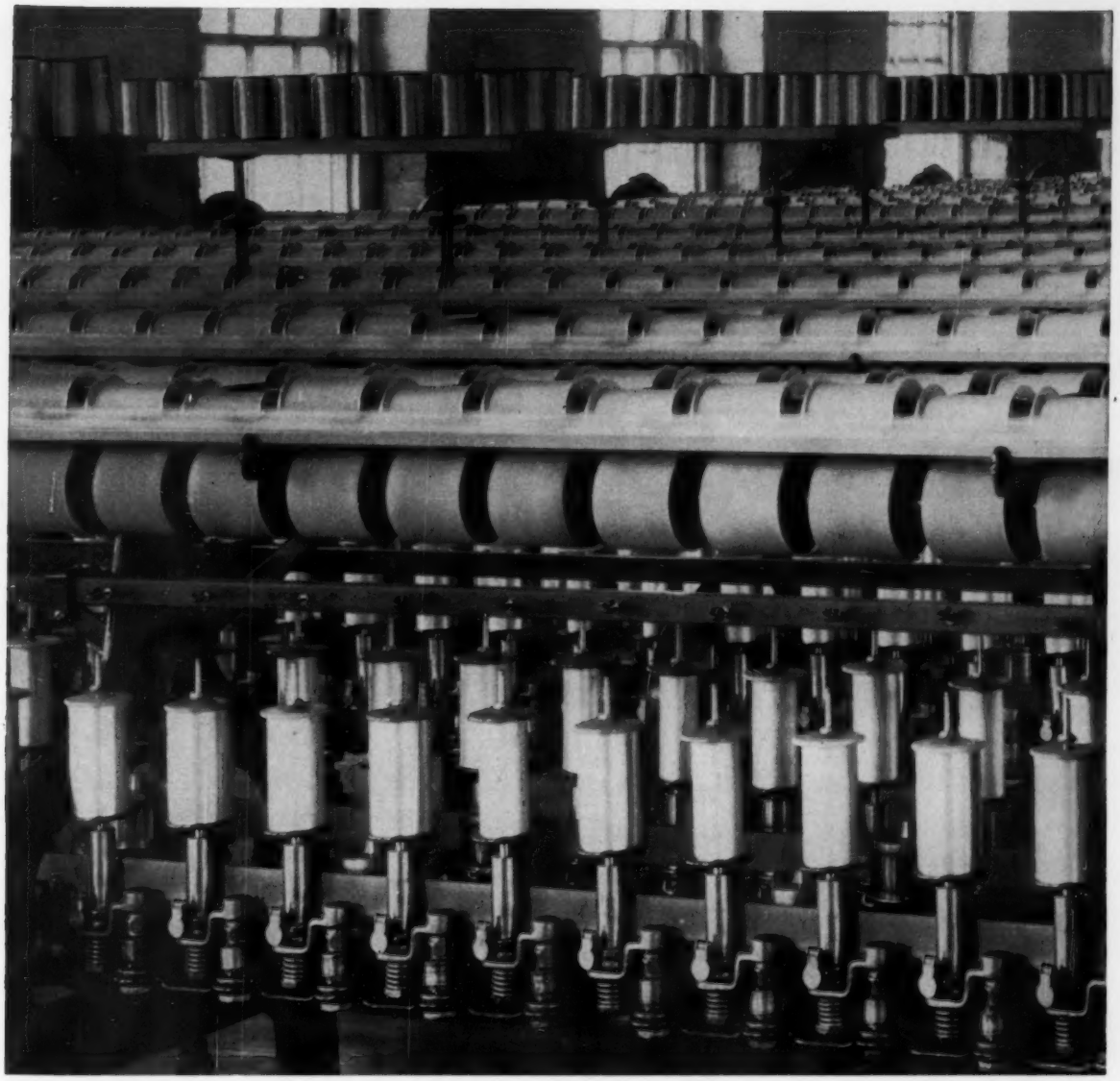
A total of 10,154,097 man hours without a lost-time accident was compiled by 18 Georgia mills during the 10th annual safety contest conducted by the Cotton Manufacturers Association of Georgia. The perfect-score mills were: **Ames Textile Corp.,** Cleveland; the Finishing Plant, Jefferson, and Plant No. 2, Crawford, of **Jefferson Mills, Inc.; J. P. Stevens & Co., Inc.,** Nathaniel Plant, Dublin; **Clarkesville Mill;** the Griffin plant of **Thomaston Mills;** Columbus Mill division, **West Point Manufacturing Co.;** Plant No. 2, Toccoa, of **Hartwell Mills;** the Athens division, and the Lumite division plants at Buford and Cornelia of **Chicopee Manufacturing Corp.;** Taylor Mills, Reynolds, and the Crown and Star plants, Macon, of **Bibb Manufacturing Co.;** Plants 2, 3, and 5 in Griffin of **Dundee Mills, Inc.;** and **Coats and Clark, Inc.,** Pelham. In ceremonies to be held at a later date, plaques will be awarded to these mills and to the following: **Crompton Highland Mills,** Griffin—one accident in 1,020,394 man hours; **Dundee Mills, Inc.,** Plant No. 1, Griffin—three accidents in 1,596,464 man hours; **Goodyear Tire & Rubber Co.,** Cedartown Mill—five accirents in 1,566,591 man hours; and **Martha Mills,** Thomaston—three accidents in 3,248,345 man hours.

A knitting machine has been installed in the New York offices of **Alamac Knitting Mills, Inc.,** enabling the firm to change colors in a pattern and let customers see a new sample immediately as compared to a wait of three or four days under the old set-up.

A 5,750 sq ft addition to **American and Efird Mills, Inc.,** Albemarle, N. C., has been completed. The addition was necessary to accommodate new machinery.

Dan River Mills, Inc., has begun construction on a new research and chemical manufacturing plant. The new facility will be used in part to house the company's research activities and in part for the manufacture of various chemicals required in manufacturing and finishing operations. * * * The new Schoolfield Finishing Plant has been completed. Operations are scheduled to be under way shortly.

The seamless hosiery department of the **Durham (N. C.) Hosiery Mills** is being expanded to enable the company to meet customer's de-



Three generations of lubrication experience

Today's complex textile machinery is being designed for more precise operation than ever before. Precise *lubrication*—the *right* lubricant at the *right* spot—by the same token becomes increasingly important . . . in fact, *vital* to full realization of your machinery's full output potential.

Precise lubrication has been the purpose and function of Standard Oil lubricants in the textile industry for over 70 years. Standard Oil's experience is backed by the world's largest facilities for petroleum research and testing . . . unmatched resources for producing a steady flow of product improvements and new lubrication techniques —better, more *precise* lubrication for the textile industry.

Call in a Standard Oil lubrication specialist today . . . He'll be glad to go over your equipment and lay out a plan that will insure *precise, profitable* lubrication throughout your plant.

STANDARD OIL
LUBRICANTS

STANDARD OIL COMPANY
(KENTUCKY)

MILL NOTES

mands. The firm has also upped production of athletic socks.

Mill No. 7 of **Erwin Mills, Inc.,** located in Neuse, N. C., has been closed, and the property placed on the market. The plant, which employed 118, had manufactured pillow case sheeting. Management indicated that the unit was too small for a profitable operation. * * * Erwin Mills officials recently participated in ceremonies at Durham, N. C., dedicating Erwin Auditorium as a city community center. The firm presented the building to the city for recreational purposes.

R. G. Frompkin Industries, Inc., has opened a woolen spinning mill in the former Lockwood-Dutchess Co. plant building in Waterville, Me. Known as the **Waterville Processing Mill,** the plant will employ 75 to 100 persons when full production is reached around the middle of the year. The new mill is expected to supplement existing spinning facilities at the firm's **Kennebec Mills Corp.,** Fairfield, Me., thereby enabling the latter plant to inaugurate a third shift. It is also intended to provide greater fabric diversification possibilities.

Glenn Mills, Inc., Lincolnton, N. C., has become a subsidiary of **Carolina Mills, Inc.** No changes in personnel or operating policies were indicated.

Equipment designed to speed up production has been installed by **Globe Dye Works Co.,** Philadelphia, Pa. The firm has also stepped up its research program with the addition of new laboratory units. Already installed are package dyeing machines ranging from 25 to 500 pounds to be used for both sample work and production. The drying machinery has been equipped with electromatic filters, designed to increase drying capacity by cutting drying time, and the firm plans to add more machinery in the near future.

Harry F. Goldman has purchased the interest in **Thrift Dye Works, Inc.,** Paw Creek, N. C., that was formerly held by George W. Pierce. As a result, Mr. Pierce has relinquished offices he previously held.

An illustrated historical booklet has been mailed to stockholders of **Roxbury Carpet Co.,** Saxonville, Mass., to mark the firm's 100th year in business. The booklet outlines a series of "firsts" which may be credited to the company, including the manufacture of the first bunting in this country. It also traces the company's steady growth from its incorporation in 1859 to its present status as a fully-rounded supplier of floor coverings with 44 different grades, with three modern mills, and with its stock listed on the American Stock Exchange.

A new firm, **Sandi Fabrics, Inc.,** has been established by Robert Finkelstein, with mill and showroom facilities at 113 Water Street, Brooklyn, N. Y. The company manufactures cotton knit yardgoods. Its first line will be a fall collection for the sport shirt, sportswear, coordinates, and dress trades.

(Continued on page 226)

First from BALTIMORE

The NATIONAL ANTHEM was written by a Maryland lawyer in September 1814...having been inspired by the unsuccessful bombardment of BALTIMORE'S FORT McHENRY by the British Fleet.

It was first sung publicly in Baltimore in 1814 and was formally pronounced the NATIONAL ANTHEM by Congress on March 4, 1931.

Courtesy – The Baltimore News-Post

— also from Baltimore...

YOUR *First* CHOICE IN BLACKS

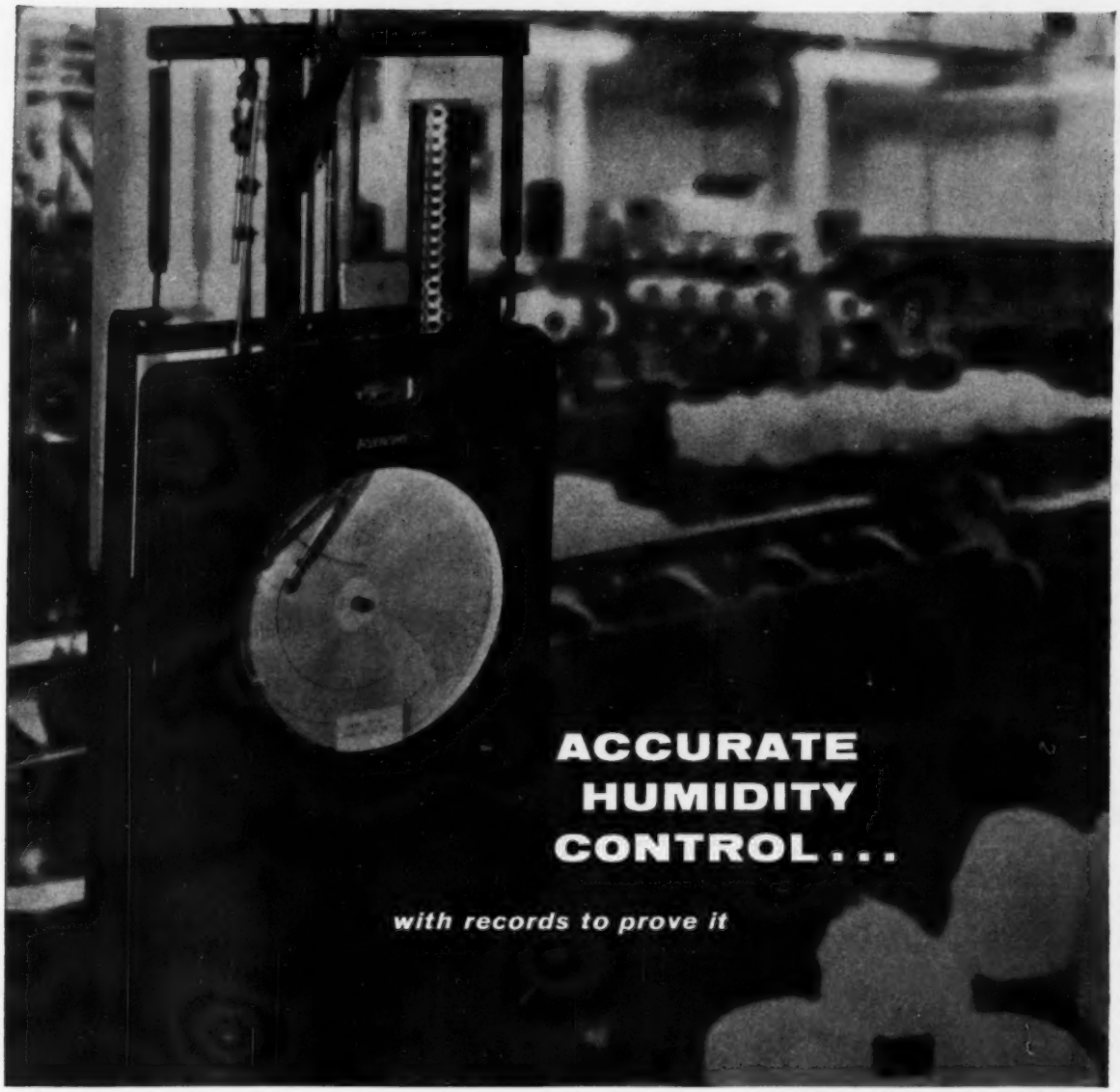
- DIRECT
- ACID
- DEVELOPED
- ACETATE
- FORMALDEHYDE
- LOGWOOD

THE HOUSE OF BLACKS

Consult your local dyestuff distributors for information and samples. Shipments can be made from our Baltimore factory.

YOUNG ANILINE WORKS, INC.

OFFICE AND FACTORY: 2701-2733 BOSTON STREET • BALTIMORE 24, MARYLAND



Foxboro Humidity Control Systems

There's no guesswork about humidity in this large southern textile mill. A Foxboro Humidity Control System holds it within ±1% of set point, 24 hours a day. And the system provides chart records to prove it!

The Foxboro instrument used in the Roving Room pictured above is a Proportional Temperature and Relative Humidity Recorder-Controller. It's just one of a complete line of pneumatic and electric humidity controllers that includes direct-reading dew point instruments, wet and dry bulb instruments, and direct-reading relative humidity recorders and controllers.

There is a Foxboro humidity instrument that will help improve production and product quality in your mill, too. Write for complete details. **The Foxboro Company, 485 Neponset Ave., Foxboro, Mass.**

FOXBORO
REG. U.S. PAT. OFF.

HUMIDITY INSTRUMENTS
Wet & Dry Bulb • Direct Reading Dew Point •
Direct Reading Relative Humidity

MILL NOTES

(Continued from page 224)

As of the last week in January, employees in weave room 1 at **Joanna (S. C.) Cotton Mills Co.** had completed a total of one million man hours without a lost-time accident.

The Elastic Yarn Plant has been established in Mount Airy, N. C., in anticipation of "expansion in the weaving trade." Kenneth Ervin will manage the plant, which is expected to require approximately 15 employees.

Construction is under way on facilities to house a new firm **Mount Airy (N. C.) Hosiery, Inc.,** which is expected to employ 200-300 persons. Officers of the company are Floyd S. Pike, president; Dennis Wade Moody, vice-president; and Robert M. Smith, secretary-treasurer.

Phoenix Dye Works, Cleveland, Ohio, has installed new paddle and package dyeing machinery. Designed primarily for handling high-bulk spun yarns, the equipment is also being used by the firm for package dyeing of cotton and worsted yarns and textured filament nylon yarns. A heat reclaiming system has also been added to the plant's equipment.

John Ashe, president of **Shelley Knitting Mills, Inc.,** Philadelphia, Pa., has developed a method of knitting interlock fabric so that it can be napped and sheared without difficulty. A patent has been applied for covering the knitting of the separation between sweater-strips as well as the welt edge on each sweater-strip.

Indian Head Mills, Inc., will close the Barbour Mill, Paterson, N. J., and Marshall Mill, Kearney, N. J., both subsidiaries of the recently-acquired Linen Thread Co. Goods in process will be run out, and both plants (together with machinery and buildings) will be offered for sale. Production of heavy duty sewing thread, fish net, cotton braided thread, linen thread, and cotton twisted thread will be concentrated in the plant at Blue Mountain, Ala., which will be the sales headquarters, as well as the main office. The firm is withdrawing completely from the jute fiber products field and has sold its machinery and inventory to the newly-formed Linen Thread Jute Mills, Inc., Kearney, N. J., a firm having no connection with the old company.

Uncommon overseer

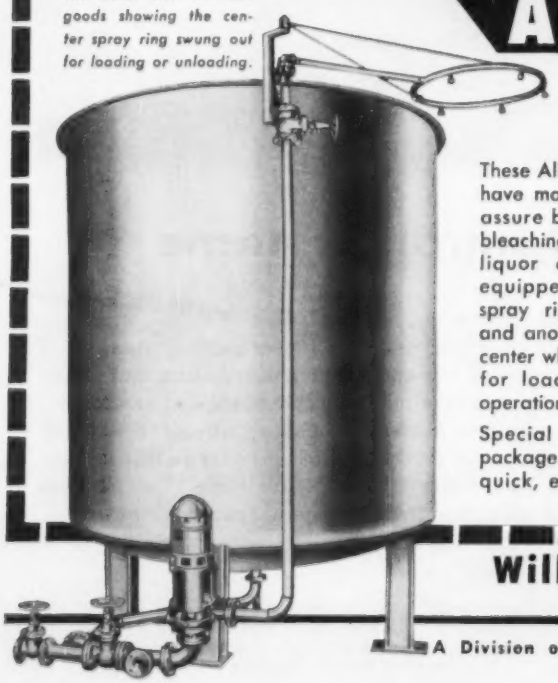
(from page 75)

this issue which describes the program a well-known thread manufacturer put into effect for the guidance of supervisors and department heads. By spelling out supervisory functions and responsibilities, the program has provided the supervisor with a measuring stick for self-appraisal, dispelling doubts as to what management expects of him.

It is not difficult to imagine what such a clear-cut program can mean to a new supervisor, who cannot help but concentrate on the development of those abilities which are most essential to his progress and to departmental efficiency.

Especially Designed for Bleaching **KNIT GOODS**

The Allen Kier for knit goods showing the center spray ring swung out for loading or unloading.



ALLEN Stainless Steel KIERS

These Allen stainless steel kiers have many advantages which assure better, more efficient bleaching. For finest bleaching liquor coverage, they are equipped with a stationary spray ring on the periphery and another ring covering the center which can be swung out for loading and unloading operations.

Special prefabricated unit-package construction permits quick, easy installation and lower cost maintenance.

SPECIAL ADVANTAGES

- Lower cost non-stretch operation
- Positive temperature control
- Controlled circulation for efficient bleaching
- Smooth stainless surfaces eliminate rust, snag and rub marks — save chemicals

Write today for circulars giving complete information on this as well as "Package Design" cloth kiers and kiers for absorbent cotton or cotton batting.

William Allen Son's Company

SHREWSBURY • MASSACHUSETTS

A Division of O. G. KELLEY & COMPANY, Boston 22, Mass.

caprolan® TEXTURED YARN SEMINAR

THE NYLON FIBER BY ALLIED CHEMICAL

NEW METHODS FOR NEW YARNS

Textured Caprolan filament yarns are different—and what a wonderful difference!

You'll find it easy to adapt your present methods to the new yarns, with a few minor adjustments. Here are some of the critical areas that should be given special attention for maximum success:

- **creeling methods**
- **tensions and tensioning devices**
- **thread guides and yarn carriers**
- **cutting edges**
- **dyeing and finishing**

Remember, textured filament yarns are precision yarns. You'll get best results if you keep this important fact in mind:

Textured filament yarns and spun yarns are not the same

We'll be happy to get you off to a fine start in the use of Textured Caprolan® in your product lines. Our technical service, end-use development and fiber application staffs are always available to help you.

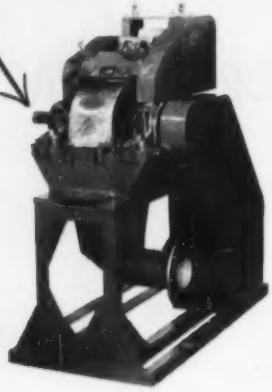
Fiber Sales & Service Allied Chemical *National Aniline Division*

261 Madison Avenue, New York 16, N. Y.

#8 of a series . . .

announcing...

new TAYLOR-STILES no. 806 staple cutter



Designed for nylon, rayon, and similar fibres, in tow or sliver form. Cuts as fine as 1½ denier, 24 hours per day at high speed, with extreme accuracy and without fusing.

One reason for the accuracy of this cutter is the air suction system which holds the fibre in position and overcomes the air currents generated by the high speed of the cutting elements.

Many other novel features are the result of 6 year's research and development work. It is being used today by one of the largest yarn manufacturers in the country.

For complete description write for Technical Bulletin #217 today. No obligation.

Please send me a copy of your Technical Bulletin No. 217.

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Address.....

City.....State.....

TAYLOR, STILES & CO.

204 Bridge Street, Riegelsville, New Jersey

SUPPLIER NOTES

A new research center for the Electrochemicals department of **E. I. du Pont de Nemours & Co., Inc.,** has been opened in Niagara Falls, N. Y. • • • Following the retirement of A. Bingham Owens as manager of the Atlanta, Ga., district office of Du Pont's dyes and chemicals division, the Atlanta and Charlotte, N. C., offices have been consolidated into a new southern district sales office with headquarters in Charlotte. Robert D. Sloan has been appointed district manager. He will be assisted by W. Fred Crayton, assistant manager, Atlanta, and Hyman H. Field, assistant manager, Charlotte.

John M. Washburn (left), president of MERROW MACHINE CO., presents J. E. Prentis with a silver tray, a gift from his fellow workers on his retirement after 40 years service with the company. Besides being a director and holding the office of secretary, Mr. Prentis was office sales manager for domestic sales.

Dow Chemical Co. has established a new sales office at 504 Wachovia Bank Bldg., Charlotte, N. C. T. H. Caldwell, Jr., has been appointed manager of the office.

U. S. Patent No. 2,871,519 has been granted to **Livingston & Haven, Inc.,** and Shuford Mills for the Long pneumatic lap control system for the calender section of pickers.

George O. Linberg has been appointed executive vice-president of **Melrose Chemical Corp.** He will work in close cooperation with the firm's president in an expansion program now under way, but will

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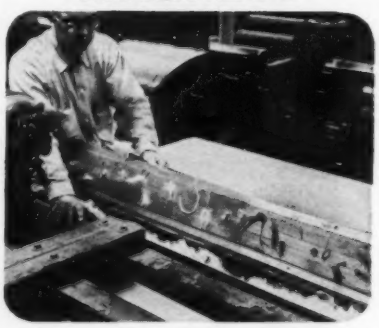

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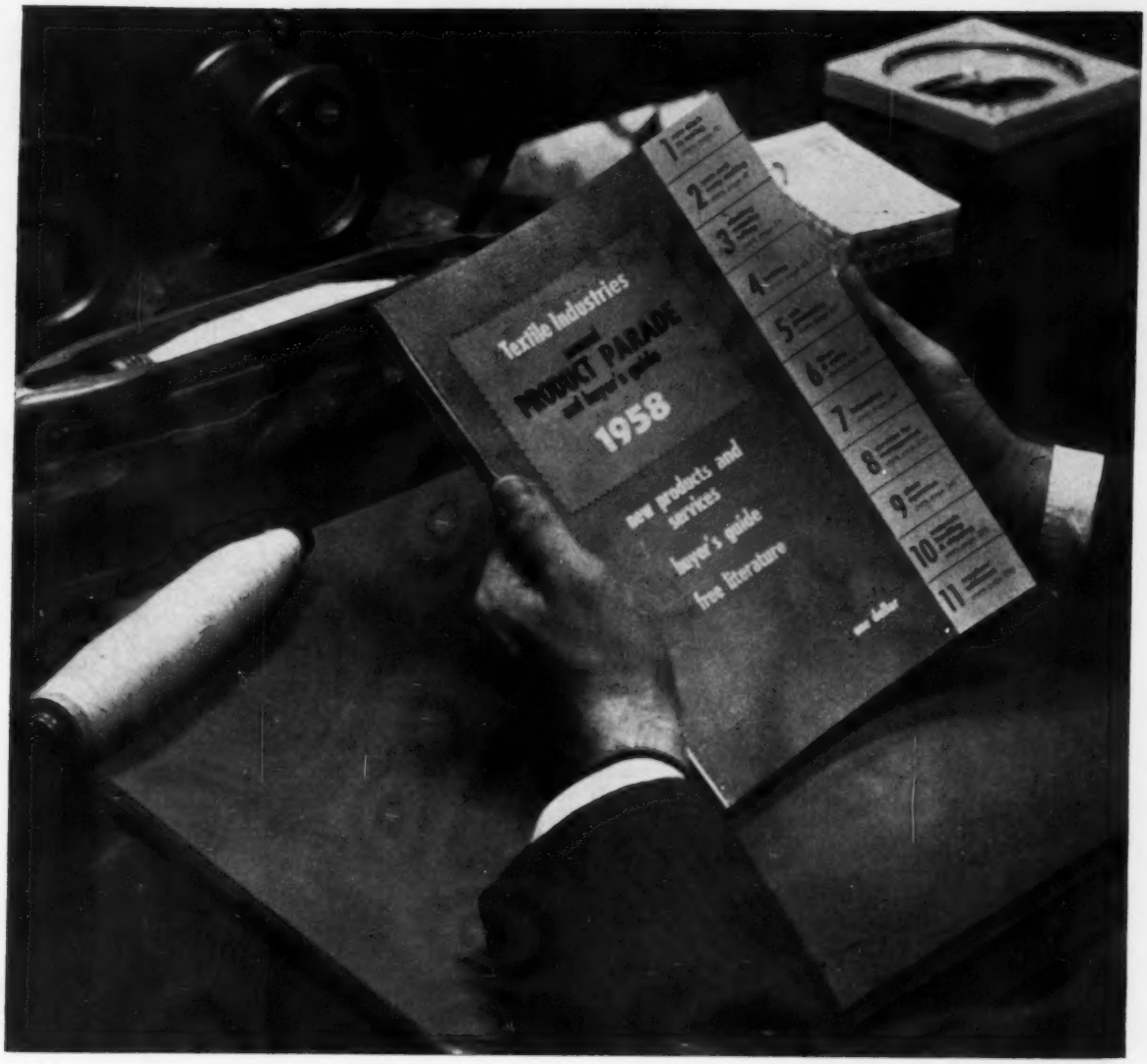

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56 WATER STREET • SACO, MAINE

SUPPLIER NOTES

devote much of his time to the application of the line of permanent finishes developed by the company.

Nat Steadman has been named national sales manager of the folding carton division of **Mead-Atlanta Paper Co.** In his new capacity, Mr. Steadman will coordinate matters of policy and pricing in the division throughout the firm's five national sales regions.

Mr. Steadman
Mead-Atlanta

Mr. Bradley
Lincoln Eng.

Jack Bradley has become assistant sales manager of the industrial division, **Lincoln Engineering Co.** His specific responsibilities include sales of industrial lubricant pumps and materials dispensing equipment. He is based in the firm's home office in St. Louis, Mo.

Mara Havinoviski has accepted a position as purchasing agent for the **National Cleaners Chemical Manufacturing Co.** He makes his headquarters in Chicago, Ill.

Albert J. Royce, Sr., has become chairman of the board of **Royce Chemical Co.** He is succeeded as president by Albert J. Royce, Jr. Howard C. Royce has been named executive vice-president.

American-Standard has created an industrial division by the consolidation of the American Blower, Kewanee Boiler, and Ross Heat Exchanger divisions. John W. Brennan is president of the new division.

Royden Walters has been elected a vice-president of **Saco-Lowell Shops.**

F. J. Hobin has joined the textile chemical department of **E. F. Drew & Co., Inc.,** as a technical sales representative. He will cover the Rhode Island, Massachusetts, and Maine territory.

H. C. (Herb) Nickelson has been named district sales manager for the Metropolitan New York area of **Clinton Corn Processing Co.** * * * George B. Redmond has been appointed to the newly-created position of manager, industrial sales, Clinton Corn Processing Co. * * * Joseph L. Finley has joined the firm in the textile field service section of the Technical Sales Service Department. He makes his headquarters at the textile service laboratory in Greenville, S. C.

Reorganization of the field marketing organization of **Cutler-Hammer, Inc.,** has resulted in the creation of new district sales offices and the establishment of five regional sales districts. J. P. Simon has been appointed regional sales manager for the eastern region, and E. A. Clark has been named to the corresponding position for the southern region.

Hugh Haley Ector has been promoted to assistant branch manager in the Atlanta, Ga., office territory of **A. E. Staley Manufacturing Co.** For the past six years, he has been a Staley sales representative to the textile industry in the South.

Arthur H. Van Wormer has been appointed sales manager, industrial products department, machinery hydraulics division of **Vickers, Inc.** In this new capacity, Mr. Van Wormer is responsible for all hydraulic equipment sales functions for the field of machine tools and other production machinery. * * * The Chicago branch of Vickers, Inc., has moved into larger quarters at Bensenville, Ill., west of Chicago's O'Hare Airport.

Mr. Van Wormer
Vickers, Inc.

Mr. Dalmas
Becco

Edward A. Dalmas has been appointed assistant manager of the southern sales territory of **Becco Chemical Division,** Food Machinery and Chemical Corp. He makes his home in Valdese, N. C.

Bruce C. Halstead has been appointed manager of the Richmond,

FAMOUS FALLACIES *about industrial advertising*

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J. H. Jewell refutes this one...

Mr. J. H. Jewell, vice president in charge of marketing, Westinghouse Electric Company, says: "*Well-planned industrial advertising is a cause — never just a result—of sales and profits. In today's economy the quality of communications in selling is as important as the quality of production equipment.*"

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SUPPLIER NOTES

Va., district of **Allis-Chalmers Manufacturing Co.**, Industries Group, succeeding J. M. Mathews, who resigned. * * * Newly-named southern sales representatives in the Industries Group are Wayne R. Broaddus, Jr., assigned to the Atlanta, Ga., district, and Joseph W. Hagan, assigned to the Birmingham, Ala., district.

The Silicone Products department of the **General Electric Co.** has opened a new southeastern sales territory headed by Joseph V. Rizzo. Until a new sales office is established, Mr. Rizzo will be located in Silicone sales office in Charlotte, N. C.

Denver D. Cunningham, sales engineer for **Proctor & Schwartz, Inc.**, has been transferred to the firm's Providence, R. I., office.

Robert W. Powell, general sales manager of **The Fafnir Bearing Co.** has been elected vice-president, sales. He replaces Charles F. Stanley, who has retired. Mr. Stanley will continue as a director.

The new address of the southern office of **Foster Machine Co.** is 1205 Johnston Bldg., Charlotte, N. C. Personnel remains the same.

In order to concentrate on other products, **Textile Machine Works** has assigned its patents on automatic inspection machines to **Southern Textile Machinery Co., Inc.**, who manufacture a complete line of hosiery inspection machines.

A. E. Staley Manufacturing Co. has patented a new dextrinization process which promises cleaner, lighter-color, more uniform, and specification-sure dextrins, according to Staley researchers. The process is expected to find application in the textile industry for print thickener, finishing, and dyeing.

Stanley Williams has formed the **S & W Foamers, Inc.**, as a commercial plant to apply backing to carpeting and small rugs. The Dalton, Ga., plant is reported to be furnished with the latest equipment for latexing, scrimming, and foaming broadloom carpeting, and/or smaller rugs. Plans include the manufacture of foam padding to go under floor covering.

Whitin Machine Works has announced its impending purchase of the American Type Founders Co., Inc. The latter firm will continue under its present name with no changes in personnel or policies indicated.

Contract has been let by **Apex Chemical Co., Inc.**, for the erection of an additional 10,000 sq ft of storage and shipping space to handle increased volume of shipments, according to a recent announcement.

A tufting machine has been presented to the Philadelphia Textile Institute by **Cobble Brothers Machinery Co.** The firm designed and built the machine for P.T.I. in keeping with current types in use in the industry. In addition to its instruction value, the machine will enable the college to expand its research and development facilities to include tufting.

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Mr. Savage
Goodyear

Mr. Remington
Curtis & Marble

R. S. Savage has been assigned as senior sales engineer in the coatings department of **The Goodyear Tire & Rubber Co.** His responsibilities include sales service work pertaining to sales of latices to the textile industry.

Leland F. Remington has been elected vice-president of manufacturing of **Curtis & Marble Machine Co.** Mr. Remington, who is also a director, retains the title of general superintendent. He is located at the Worcester, Mass., office. At the same time William A. Marble was elected to the board of directors.

Olen Marks has accepted a position as manager of the technical service department of **Fabrionics Corp.** Mr. Marks is available for consultation regarding the application and service of any Fabrionics product at P. O. Box 10633, Cameron Village, Raleigh, N. C.

Dr. H. Bunde has taken over his duties as a technical and scientific representative in the United States for **Farbwerke Hoechst AG.**, and also has assumed the position of vice-president of **The Uhde Corp.** in New York City. In these capacities, Dr. Bunde succeeds Dr. Hans Hoyer, who has returned to the firm's home office in Frankfurt-Hoechst, West Germany.

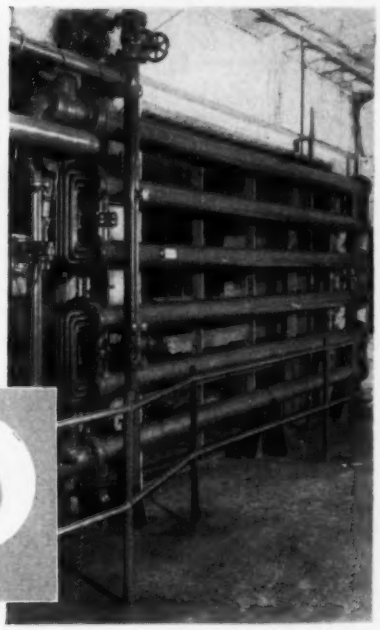
R. J. (Dick) Matteson has joined **The North American Manufacturing Co.** as eastern district engineer for the hydraulic control division. Mr. Matteson, formerly eastern district manager for the Askania Regulator Co., makes his headquarters at North American's Plainfield, N. J., office.

R. Fred Long has joined the technical service staff of **Roberts Co.** He will work out of the company headquarters in Sanford, N. C. * * * According to a recent announcement, Roberts Co. has received an order for 15 Arrow M-1 spinning frames from Shelby (N. C.) Cotton Mills, and for 44 Roberts modernized cotton system spinning frames from Calvine Mills, Inc., for its Lumberton River Mills division, Lumberton, N. C. The machines will be used to produce warp yarns for Calvine's extensive print cloth production.

American Enka Corp. has appointed Jack C. Webb to the newly-created post of industrial sales coordinator in the industrial yarn sales department. In this new position, Mr. Webb will coordinate planning of production and shipments and will also provide technical assistance for industrial fabricators using Enka products. He is located in the New York office.

A new southern branch office has been opened by **Berkshire Color & Chemical Co.** at 3209 Cullman Ave., Charlotte, N. C. Complete warehouse and laboratory facilities enable Berkshire to handle all service work required by customers in this area. Thomas J. Ratajczak will head the office, and Charles P. Van Name has been named technical director. Valco, Inc., (formerly Berkshire's

When your boiler's overloaded ... a Ludell System of Waste Heat Recovery is your ace in the hole



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GREENVILLE,
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SUPPLIER NOTES

southern representatives) will continue to serve its Berkshire customers until July 1, at which time Valco will discontinue all sales in the dyestuff field.

C. Russell Gill has resigned as president of Southern Sizing Co. and accepted a position with **Arnold, Hoffman & Co., Inc.,** as sales consultant on textile chemical auxiliaries for sizing and finishing. He will operate from the Atlanta, Ga., and Charlotte, N. C., sales offices. In addition to his duties as sales consultant, Mr. Gill will assist in new product development in the above fields.

Mr. Gill
Arnold, Hoffman

Mr. Miller
Eastman Chem.

Richard E. Miller has been appointed district sales manager in charge of dye sales in the northeastern states for **Eastman Chemical Products, Inc.,** subsidiary of Eastman Kodak Co. Headquartered in the company's Lodi, N. J., distribution center, Mr. Miller will also direct the work of the service laboratory there.

Philip A. Brooks has been designated director of sales and service for the southern territory of **Bentley Knitting Machinery Organization, Inc.** He is based in Charlotte, N. C. Armand H. Huppe has become sales and service engineer in Bentley's New England and western territory, as well as the states of New York, New Jersey, Pennsylvania, Delaware, and Maryland. He headquarters in the main offices in Providence, R. I.

Hayden C. Cobb has assumed his duties as sales manager at the new branch of The Denman Division, **The McCandless Co.,** at 607 W. Fifth St., Charlotte, N. C. The new branch serves as sales offices and warehouse for the southern territory.

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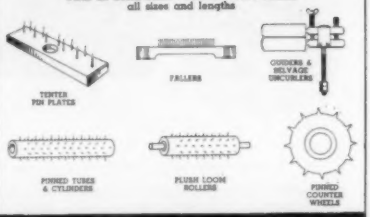

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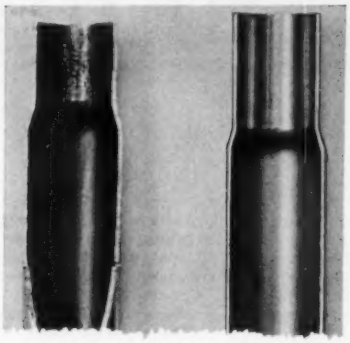

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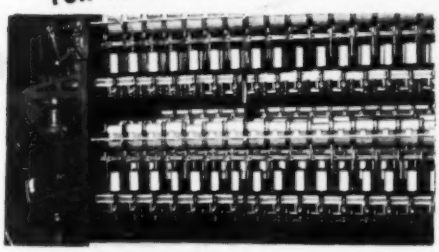

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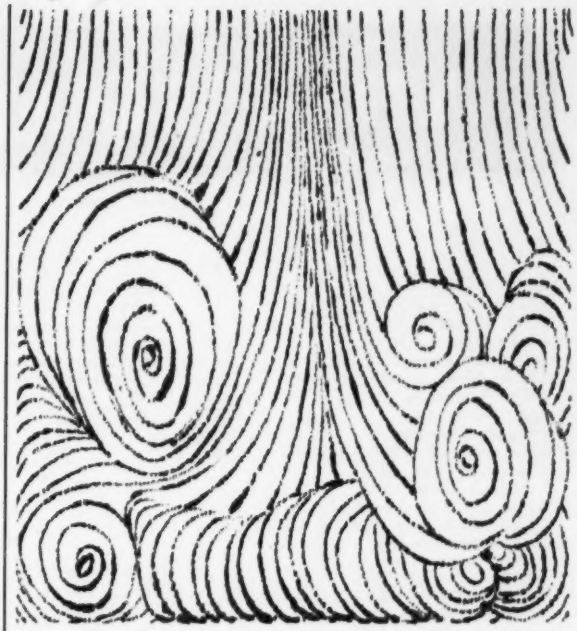

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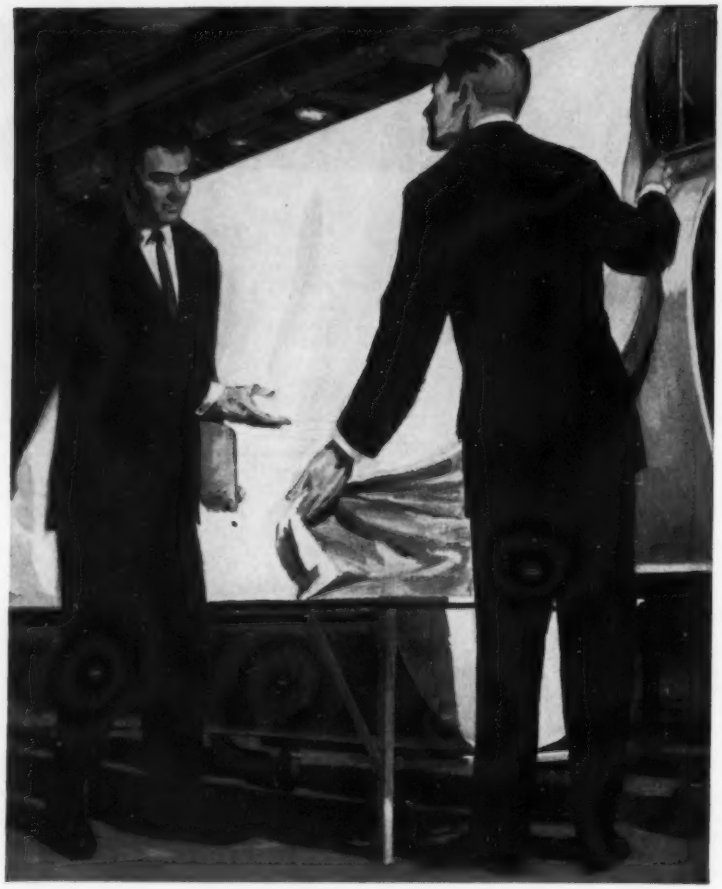

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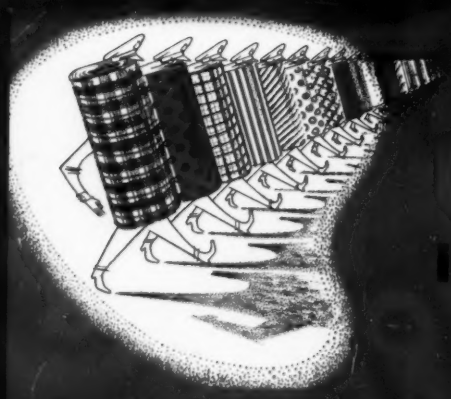

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